JUNE 14, 1958
VOL. 154 — No. 24

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

SIGNAL CORPS CITED

U. S. Army Signal Corps celebrates its 98th anniversary. Provides American soldier with finest communications systems. Above is the new all-weather radar "eye" which spots distant single enemy, vehicles, or large groups in the darkness or fog. See page 31 for story.

Published every week on Saturday by TELEPHONY PUBLISHING CORP. 500 S. Dearborn St., Chicago 5, Ill. Subscription $6.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

Guaranteed Circulation This Issue
12,949 of Which 12,345 is Paid

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

● COAST-TO-COAST...Independent operating companies in 46 states and Alaska have bought more than 2100 separate installations of XY® Dial equipment. One basic reason for this wide acceptance of XY is flexibility. Whether you serve a small or a large community, with XY you can expand service without replacing equipment.

Plug-in switches and circuit plates make this possible. Other advantages of XY over other systems: vertical wire banks; twin contacts in switches and wipers; the "Fourth Wire"; space economy. For details see your Stromberg-Carlson representative.

STROMBERG-CARLSON A DIVISION OF GENERAL DYNAMICS CORPORATION

ELECTRONIC AND COMMUNICATION PRODUCTS FOR HOME, INDUSTRY AND DEFENSE

FLASHES AND PLUGS

SOME VAGARIES ABOUT VOLUME. Women don't really talk louder than men do. It just sounds that way, a Chicago acoustical engineer stated recently.

A high-pitched sound seems louder than a low-pitched sound at the same volume, said Guy Sanders, supervisor of the noise control section of the Armour Research Foundation.

"Actually, a sound-level meter has proved that most men put out a greater amount of sound power," said Mr. Sanders.

The volume of voices depends on surroundings, he added. Most people want to talk softly in a cozy room.

The children's room usually is the noisiest in the house. Then comes the kitchen and the recreation room.

Adults usually talk louder in the kitchen than in other rooms because they subsconsciously try to talk above the sound of appliances, even though modern appliances are quieter. . . . Or so said the scientist.

•

OPERETTA LOVER. Russel Crouse, co-author of *Life With Father, State of the Union,* and many other works, was asked by a music lover if he liked operettas.

"Well, yes," quipped Mr. Crouse, "if they're telephone operettas."

•

TRUTH IN ERROR. "Your cultivation method is entirely out of date," criticized the know-it-all.

"Why, I frankly doubt you'll even get two bushels of apples from that tree," said he, shaking his head.

"Guess you're right," the old farmer replied wearily. "It's a pear tree."

•

SILENCE IS GOLDEN. Persons who frequently talk themselves hoarse are more likely to develop cancer of the voice box than those who speak softly, a Los Angeles surgeon reported recently.

Salesmen, newsboys, circus barkers, pitchmen, and auctioneers are typical of those who keep their vocal cords under strain, said Dr. Alden H. Miller of the University of Southern California Medical School.

•

CHATTER BOXES. "Whatever else the recession has done, it has not rendered Americans speechless with anxiety. The American Telephone & Telegraph Co. reports that since last September, the number of telephone conversations has gone up by more than 5 million a day."—*Fairmont (W. Va.) Times.*

CHANGE OF ADDRESS

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

June 14, 1958

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H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • LORRAINE M. QUINN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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YH

CREATIVE ENGINEERING FOR
THE PUBLIC UTILITY INDUSTRY
SINCE 1892

this is the latest design 20IU76 BODY

Illustrating YORK-HOOVER CONVENIENT SPARE WHEEL SLIDING SHELF. Can also be used for additional tool or material carrying compartment.

Illustrating NEW YORK-HOOVER EXTRUDED NEOPRENE GUIDES for overhead ladder brackets that prevent chafing wear on ladder rails.

Illustrating NEW YORK-HOOVER EXTRUDED NEOPRENE DOOR SEALS —more durable than sponge rubber— also prevents doors freezing to seals in cold weather.

THESE FEATURES MAKE THE YORK-HOOVER 20IU76 SERVICE BODY *THE LATEST*

Yes, these and many more *cost-saving features* including—lightweight, yet rugged construction—adjustable, partitioned drawers—and flush type, paddle handles—make the York-Hoover 20IU76 Service Body the lastest in *design*—*construction*—in overall *efficiency.* Write for complete details today! Make sure *you* have the latest design 20IU76 Service and Installers Body—the *York-Hoover* 20IU76.

CLIP AND MAIL TODAY!

Dept. 2T, York-Hoover Corporation
York, Pa.

Please send me a copy of Bulletin No. 937 covering your 20IU76 Service Body.

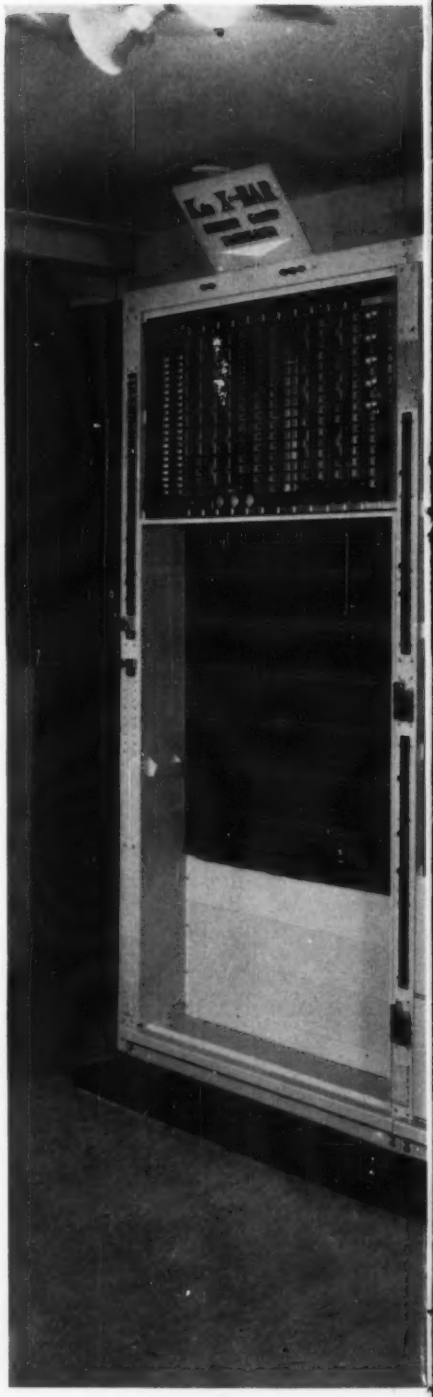
Name_____

Company_____

Address_____

City and State_____

BODY DIVISION
YORK-HOOVER CORPORATION
YORK, PENNSYLVANIA



The REALLY BIG Advance in CROSSBAR SWITCHING!

"Star" of the U.S.I.T.A. Convention was the new K-60 Crossbar Switching System—the biggest advance in automatic switching for independent telephony. This new Kellogg development offers *full terminal-per-station efficiency with terminal-per-line type of equipment.* And, it can be engineered for any size system from small community dial offices to large metropolitan exchanges with maximum operational savings.

The efficiency of the new K-60 is achieved through the use of registers and full-station translator bays. The registers completely control dial selections on a stage-by-stage basis and accept up to 14 digits for nation-wide toll dialing. In the translators, subscriber assignments are made by inserting rectifiers in a matrix associated with each telephone number, thus eliminating major soldering changes on the main frame.

SOME OF THE EXCLUSIVE K-60 FEATURES

- Conversation timing by 10-line groups.
- Conversation timing on revertive calls.
- Any telephone arrangeable for joint party release, thus permitting the tracing of malicious calls.
- Detects trouble—locks trouble-path and blocks from future calls until correction is made.
- Simplified main distributing frame utilizing a 2-conductor jumper per line.
- 100% Intercept facilities.
- PBX groups may be spread over entire office—eliminating need for high traffic connector group.
- No charge assignment on specific lines such as Police and Fire.
- Toll access restriction by 10-line groups.

Call your Kellogg representative and let him show you how these and the many other features of the new K-60 Crossbar Switching System can bring new and better service to your subscribers at the minimum cost.

KELLOGG
A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
A Division of International Telephone and Telegraph Corporation
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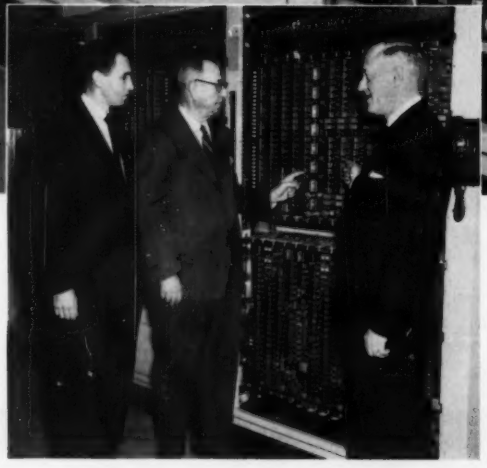
Minneapolis 16, Minnesota
WEst 9-6715 - 16



The K-60 Crossbar Switching System was introduced in this display at the U.S.I.T.A. Convention. This new unit reduces floor space requirements of previous crossbar equipment by 30%.

Among many distinguished visitors expressing interest in the new K-60 was Mr. S. A. "Gus" Lane, President of the Western Arkansas Telephone Company, Russellville, Arkansas. Mr. Lane (center) was shown the systems' many outstanding features by G. T. Scharffenberger (left), President, and W. P. Hollis, Vice President, of Kellogg Switchboard and Supply Company.

BEFORE YOU BUY "Adequate Intercept"

FOR THE INTERIM PERIOD

INVESTIGATE...

UNIVERSAL COMPUTER INTERCEPT

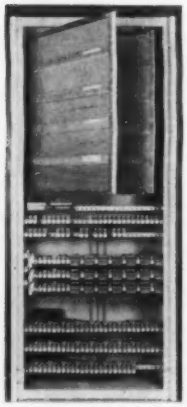
100% Toll Intercept is

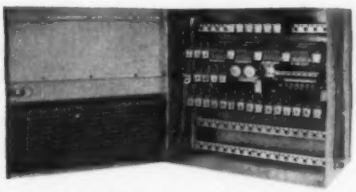
The Ultimate Goal of the Direct Distant Dialing Program

Universal 100% Toll Computer Intercept is the *only* intercept that can be installed in a toll center to serve outlying offices . . . may also be installed in end offices.

Other ***UNIVERSAL*** Equipment:

Code-to-Selective RINGING CONVERTER
DIGIT ABSORBER
TRUNK DIGIT REGISTER





Cabinet 19" x 17" x 8" for rack or wall mounting, 40 lines TPL illustrated.

Cabinet 84" x 36" x 12", capacity 40,000 stations, TPL or TPS or any combination of both.

FOR FULL PARTICULARS
PLEASE WRITE DIRECT TO
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OR CONSULT YOUR DISTRIBUTOR
FOR DETAILS

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UNIVERSAL
CONTROLS CORPORATION

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MAIL ADDRESS – P. O. BOX 13122, DALLAS 20, TEXAS
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ON ORDERS DIRECT TO UNIVERSAL, BILLING WILL BE THRU YOUR PREFERRED DISTRIBUTOR

TIME IS THE MEASURE OF ALL WOOD PRESERVATION

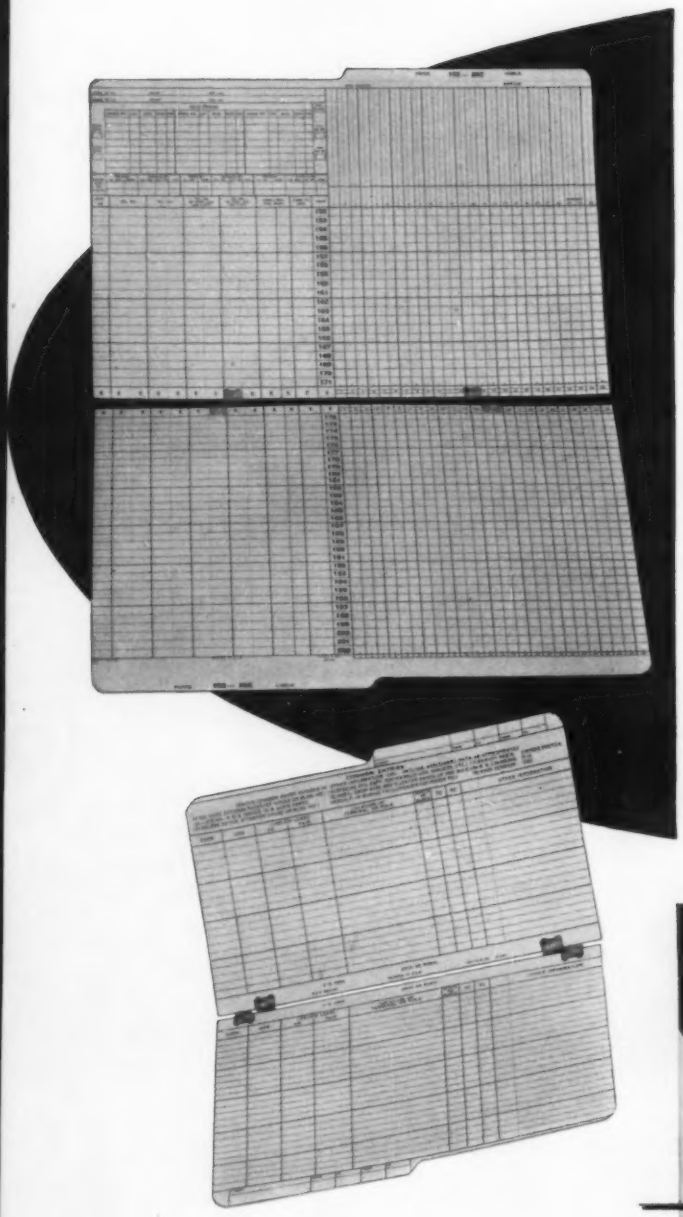
During working hours or leisure hours—if the topic is wood preservation, the question is, "Which method?"... For more than fifty years, major industrial users of wood have confirmed that the best answer is AMCRECO pressure treatment.

AMCRECO
PRESSURE TREATED WOOD PRODUCTS

AMERICAN CREOSOTING CORPORATION LOUISVILLE 2, KENTUCKY
SUBSIDIARY OF UNION BAG-CAMP PAPER CORPORATION

ACME VISIBLE

CABLE AND TERMINAL



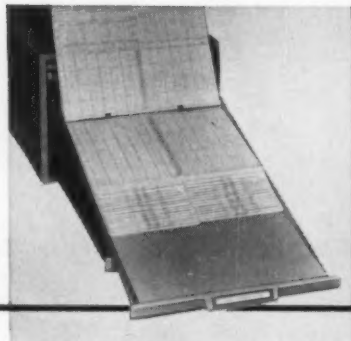
Designed by experienced telephone personnel to accommodate all of the various conditions encountered in the preparation of terminal assignment, exchange subscriber cable, and related basic plant records, in accordance with approved system practices. Simplifies and speeds the work of assignment. Adaptable for large, intermediate and small centers with the flexibility to meet the requirements for peak and normal work loads, varying number of cables, and other local conditions.

CABLE ASSIGNMENTS

Cable assignments forms. With preprinted pair numbers, filed in numerical sequence, exposing a 51 pair complement. Cards are of special Acme Endurex rag content stock to permit repeated erasures and changes. Forms available for 50 terminal capacity and 8 party stations; 44 terminal capacity and 10 party stations; and for unusual conditions.

TERMINAL ASSIGNMENTS

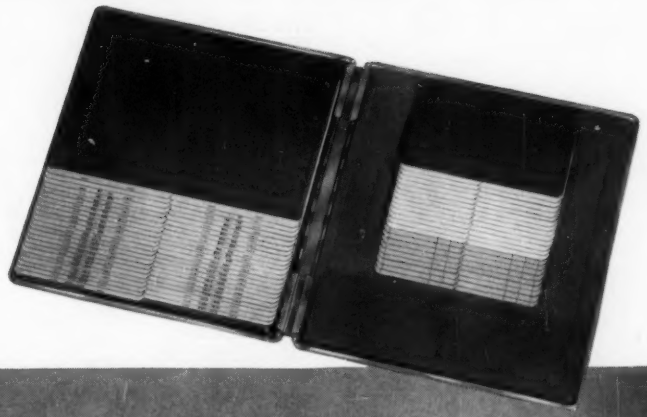
Terminal assignment forms. Eliminate the necessity of referring to supplementary maps to determine the correct distribution cable terminal. Forms available for distribution by (1) street, block or alley; (2) office building or apartment; (3) exchange wire.



Visible cabinets are available in a number of sizes. Each tray has a maximum of 102 forms or the equivalent of 5,100 cable pairs. Cabinets can either be stationary on stands or desks, or mounted on turntables.

Portable stand with sliding shelf, cable assignment book rack holding three books and three vertical trays for subscriber line cards. Developed for smaller telephone offices where one individual handles both cable assignment and subscriber line cards.

ASSIGNMENTS

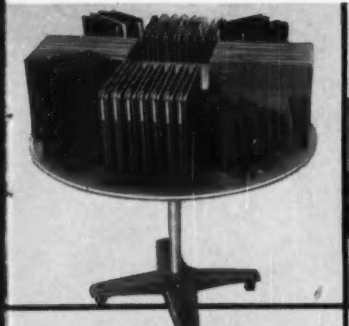


A TOUCH OF A BUTTON BRINGS THE RECORD TO YOU

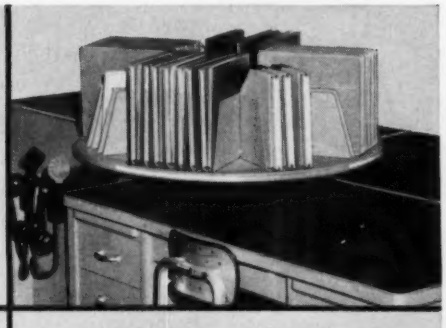
Individuals seated at rotary need not move about to reach records. Books slide in and out without any lifting. Rotaries provide accessability to records at many points around circumference, and permit clerk to do a complete cable throw.

They are designed to house a multiple number of light-weight metal-edged visible books containing many thousands of records.

Motorized Rotary and 6-position Desk Assembly with push-button controls at each position. One of many sizes available for Plant Department Records; Reservation Bureaus; Inventory Records; Records of Shipments; other central-control references and posting requirements.



Rotaries provide tremendous capacity in a compact area and permit instant availability of records to one or more persons. Rotary on pedestal, hand operated and desk height, may be placed next to or between desks, wherever convenient.



This illustration shows rotary placed at the junction of four desks . . . easily available to four persons. Visible card books are filed between spaced divider fins with intermediate divider openings for filing other papers, etc.

Acme Visible equipment has been designed for telephone use by Acme Systems Engineers in close cooperation with practical experienced telephone experts. Tell us your requirements and receive our suggestions and quotations.

T6-14-58

ACME VISIBLE RECORDS, INC.
Telephone System Division, Crozet, Virginia

Please send us illustrated booklet

- ☐ #1088 on Acme Switchboard Keyshelf Units
- ☐ #975 on Acme Flexoline
- ☐ Have representative call. Date.....Time.....
- ☐ We are interested in Acme Visible equipment for .....records
  kind of records

Company.....Attention.....

Address.....

City.....Zone.....State.....

REVENUE IS ROLLING IN WITH THE ELECTRONIC SECRETARY!*

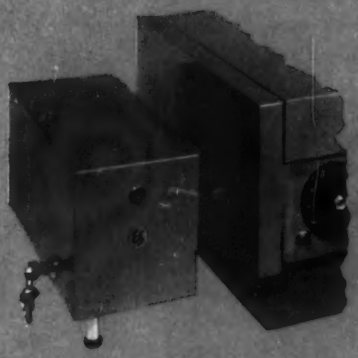
MODEL DCR-1

PROVIDES A COMPLETE TELEPHONE ANSWERING SERVICE FOR YOUR SUBSCRIBERS AND BRINGS YOU A STEADY FLOW OF REVENUE

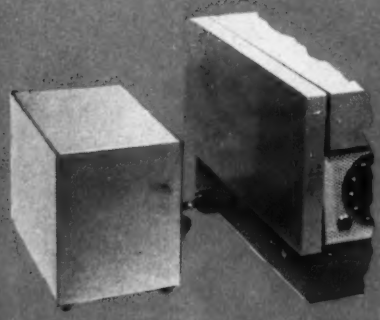
Telephone companies now providing the *Electronic Secretary* find that revenue is literally *rolling in!* Use of the *Electronic Secretary* in both the home and the office has been a great money-saving item for subscribers—and they're glad to pay well for this service.

With the *Electronic Secretary* your subscriber no longer worries about missing important phone calls. It will answer his phone courteously, dozens of times a day. It works around the clock, records name, number and message, or tells the caller to call another number—a complete secretarial service! A wonderful source of revenue for the telephone company! For complete information call your Automatic representative or write to Automatic Electric Sales Corporation, Northlake, Illinois.

*ELECTRONIC SECRETARY is a registered trademark of Electronic Secretary Industries, Inc.



Remote Call-Back Addition for Model DCR-1 Electronic Secretary. Subscriber hears recorded messages by transmitting a tone signal over remote phone. Machine then switches to normal operation.



VCR-4 Voice Control Attachment for Model DCR-1 Electronic Secretary. Permits caller to record message for extended period of time. Message is recorded as long as caller continues speaking.

Tape Adapter for Model DCR-1 Electronic Secretary. Records outgoing messages. Uses microphone, endless tape cartridge (1½ min. to 3 min.).

Model T-t Electronic Secretary. Answers telephone in subscriber's own voice by means of endless tape cartridge (capacity 30 sec. to 2½ min.). Ideal where messages change frequently.

To help boost your sales of the Electronic Secretary we will send you sales literature and envelope stuffers upon request.

AUTOMATIC ELECTRIC

A member of the General Telephone System – One of America's great communications systems

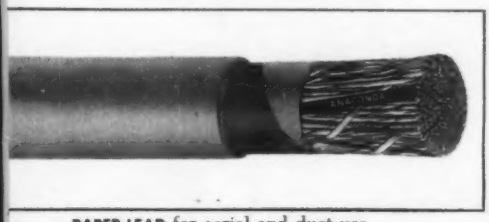
GENERAL TELEPHONE SYSTEM

See the Man from Anaconda for

Paper-lead Telephone

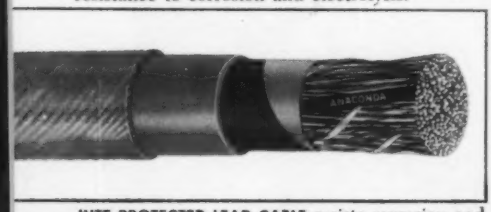
in the type and size you need . . .

Choose Anaconda Paper-lead Telephone Cable in the type you need.

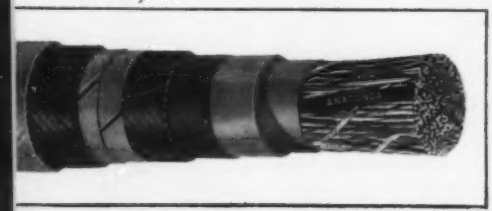


PAPER-LEAD for aerial and duct use.

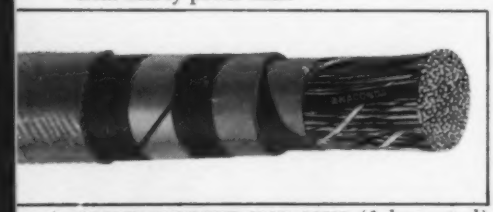
POLYETHYLENE PROTECTED LEAD CABLE offers high resistance to corrosion and electrolysis.



JUTE PROTECTED LEAD CABLE resists corrosion and electrolysis.



BURIED TAPE ARMORED LEAD CABLE (2 layer steel) for areas subjected to low-frequency induction from nearby power lines.



GOPHER PROTECTED LEAD CABLE (1 layer steel) direct burial cable where mechanical protection is needed.

ANACONDA PAPER-LEAD TELEPHONE CABLE being installed near Harold, Kentucky.

Cable from 6 to 2121 pairs—

. . . when and where you need it!

Anaconda offers you everything you need in paper-lead telephone cable—produced in a new, modern plant devoted exclusively to telephone cable products. Telephone experienced personnel who understand your problems utilize the latest, most exacting quality control standards—to produce quality telephone cable. And order service is prompt and efficient wherever you are because of a national network of distributors, Anaconda sales offices, and mills.

Call your Anaconda distributor or the Man from Anaconda for your paper-lead telephone cable needs. Also—write for new Catalog DM-5771. Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

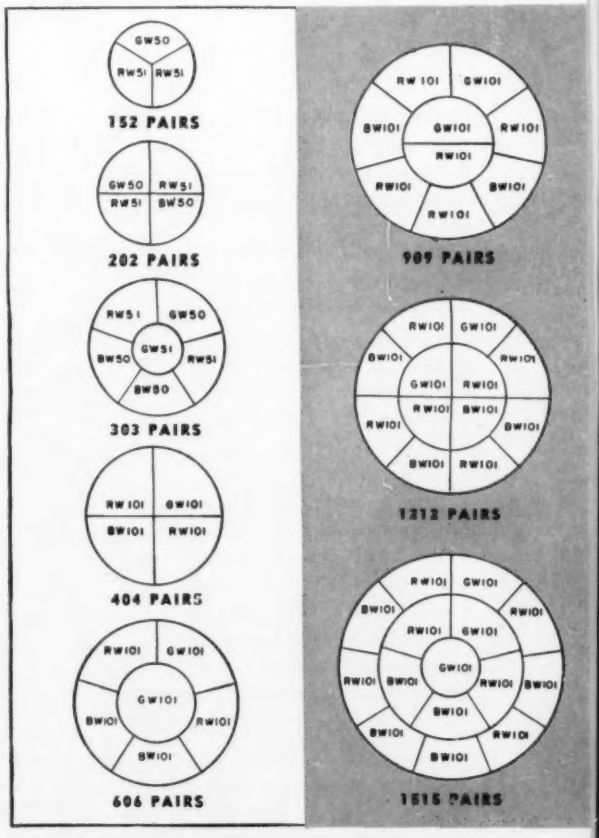
58324

Shown here is a typical unit construction for 152 pairs through 1515 pairs, No. 24 Awg. Following constructions also available:

No. 19 Awg	6 through	455	pairs
No. 22 Awg	11 "	909	"
No. 24 Awg	11 "	1515	"
No. 26 Awg	11 "	2121	"

The number in the assemblies denotes the number of pairs in the unit. The letters refer to the color of the outside pairs of the unit. GW, green-white; RW, red-white; BW, blue-white. The units are further distinguished by a color-coded binder string.

Choose Anaconda Paper-lead Telephone Cable in the size you need.



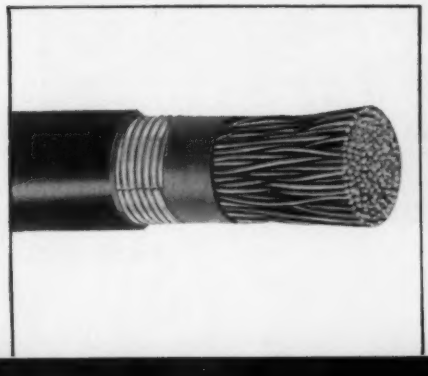
UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

PHONE THE MAN FROM ANACONDA®

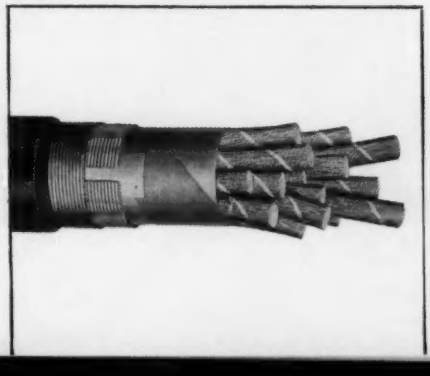
The Independent Manufacturer to the Independent Telephone Industry

FOR TELEPHONE CABLE

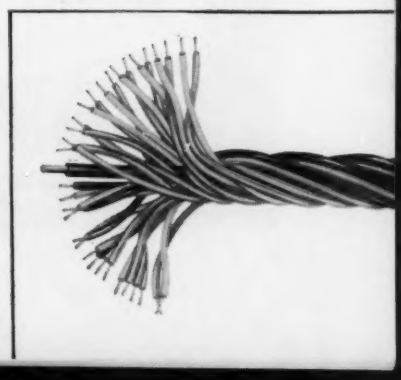
ALPETH—Polyethylene-insulated, low-resistance aluminum shield, polyethylene jacket.



STALPETH—Paper-insulated, aluminum shield, steel tape, polyethylene jacket.



DISTRIBUTION WIRE—rural [#19], suburban [#22] and urban [#24].



take our CUSTOMERS' WORD for it-

Customer satisfaction is one reason why L. M. Berry and Company has successfully enjoyed the association of leading Telephone Companies throughout the United States during the past forty-eight years.

Since 1950, L. M. Berry and Company has been handling the Directory Advertising for the Concord Telephone Company . . . one of many of Berry's satisfied customers.

You, too, can enjoy the many advantages and added profit derived from having L. M. Berry and Company handle your Directory Advertising. Call or write today.

THE CONCORD TELEPHONE COMPANY
78 EAST DEPOT STREET
CONCORD, NORTH CAROLINA

April 28, 1958

L. M. Berry and Company
Hulman Building
Dayton 2, Ohio

Gentlemen:

We take pleasure in writing this letter which is intended to express our sincere appreciation for the efficient and profitable way in which you have managed the sales of our Directory Advertising and the compilation of the Classified section. The way in which the advertising sales have been handled by your well trained personnel, has resulted in materially improving our public relations.

We have frequent cause for adjustments and changes in methods of settlements. In each instance we have not only found you to be absolutely fair but prompt, courteous and reasonable. You have certainly worked for our best interests, and the benefits we have derived from your experience has enabled us to issue telephone directories of which we are proud.

Our Classified Directory has grown each year that you have handled our advertising sales and each year the advertising profits have increased. We are well pleased with your service.

This letter is written in all sincerity and we are looking forward to many more years of pleasant and profitable dealings with your very fine Company.

Very truly yours,

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BY FRANCIS X. WELCH, WASHINGTON EDITOR

Celler sub-committee hearings on Bell System—Western Electric consent decree ends. FCC hearings on Wisconsin Bell's purchase of Independent properties also come to a close. FCC hears GSA request for reduction of private line rate to Government bureaus. Commission also seeks data on community TV antenna systems.

REP. EMANUEL CELLER (D., N. Y.) has finally ended the drawn-out hearings before the House Judiciary Sub-committee (of which he is chairman) on the Bell System-Western Electric consent decree. The purpose of these hearings, which began last March, was to find out whether the Justice Department did a smart thing in settling its anti-trust suit against Bell System by an agreement permitting Western Electric to continue as a manufacturing subsidiary.

It will probably be late in the summer, or even next fall, before the Celler group presents its report. The chances are better than even that there will be two reports—a majority and a minority. Representative Celler has already indicated that he thinks the Justice Department did not act wisely in this situation. But, some of the things Representative Celler says may be discounted, to some extent, as being what the late Wendell L. Willkie used to call "political oratory."

The chances of any change in the consent decree would appear more likely to come from any second thoughts which the Justice Department might have in the matter. If the Justice Department decides to go back to the federal district court and ask that the decree be reopened or "further" clarified, the court would have to listen and take action one way or the other. And there have been indications that the Justice Department might do that.

At the closing session of the Celler sub-committee, Assistant Attorney General Victor R. Hansen, supported the action of his predecessor, Stanley R. Barnes (now a judge on the U. S. Circuit Court of Appeals), in agreeing to a consent decree. Hansen further agreed that Judge Barnes had sized up the situation correctly when he decided, in January, 1956, that a consent decree along the lines finally filed with the district court was about the best deal which the Justice Department could hope to get out of its anti-trust suit. Judge Barnes had previously testified that, in his judgment, the Justice Department could not have expected to win its case along the original lines of the suit, which demanded absolute divorce between Western Electric and the Bell System.

Mr. Hansen did say, however, that his department is considering certain possibilities for modification of the decree, particularly as to that provision which deals with the rendering of non-regulated services by the Bell System. This would be Sec. 5 of the decree. It prohibits the Bell System from rendering non-regulated service. What seems to be bothering the Justice Department now is just what is a non-regulated service and whether a service previously non-regulated could be brought within that category by the Bell System through the filing of tariffs for new regulated service. Whether the Justice Department will actually seek such a modification remains to be seen.

Hansen appeared before the subcommittee at the closing session with two staff assistants, Walter D. Murphy and William D. Kilgore Jr., who had participated in the consent decree arrangements. Both of them had taken the position (allegedly in a letter sent to Judge Barnes when he was head of the anti-trust division) to the effect that if Western Electric could not be divorced from the Bell System, it would be better to drop the whole matter. That, of course, is not what the Justice Department did.

It is not unusual, however, for staff attorneys working on the preparation and prosecution of a case like this, to seek maximum results and even to convince themselves that such results ought to be obtained. Judge Barnes apparently made a practical distinction between what ought to be obtained and what could be expected.

Hansen did say also that his office is conducting a general inquiry into those activities of the Bell System which ought to be discontinued under the terms of the decree. Apparently there is disagreement on this between the Bell System and the Justice Department. The department has asked for a report on Bell System compliance with respect to specific activities and the manufacturing of equipment and products which are not used by system companies in normal or regular telephone company service operations.

One of the last pieces of evidence submitted on behalf of the Bell System was a record of interstate rate reductions since 1935. This report indicated that the total reductions between 1935 and 1937 exceeded 63 million dollars. The cumulative effect of these successive reductions in terms of the 1957 volume of business was estimated in excess of 700 million dollars a year.

Menomonee Falls Case

The hearing phase of the FCC's case involving the acquisition of Independent telephone company properties in Menomonee Falls and Lisbon, Wis., by the Wisconsin Telephone Co. has come to a close. The hearing examiner, Col. James D. Cunningham, has set July 1 as the date for the submission of proposed findings from the various parties.

This is the case in which the United States Independent Telephone Association is contesting the acquisition of the Independent properties on grounds that it is not in the public interest for such Bell purchases to shrink the area of Independent company operations, especially where there are Independent companies ready, willing, and able to buy the properties offered for sale. A good deal of the testimony was given over to details of disputed facts as to who made how much of an offer to buy what and when.

But, the key to the case seems to lie in a conflict of principles brought out by the respective testimony of Col. William C. Henry of Bellevue, Ohio, on behalf of the USITA, and George L. Best, vice president of AT&T in charge of Independent company relations. Best urged, in his testimony, that the application of the Wisconsin Bell for FCC approval of the purchase of the Independent properties was in the public interest. Col. Henry, on the other hand, contended that public policy and prior commitments of the Bell System require that the Bell System companies should not acquire Independent company telephone properties under these circumstances unless the Bell System was willing to sell similar properties to Independent companies by way of offset.

Best denied that the Menomonee-Lisbon acquisition violated the spirit of the 1927 policy declaration made by the late E. K. Hall, vice president of AT&T. He pointed out that the Hall Memorandum reserved the right of the Bell System to buy Independent properties in distressed situations where Independents were unable or unwilling to buy the same. The USITA witnesses have contended, of course, that such was not the fact in the case of the Menomonee-Lisbon deal.

Thomas A. Boyd, vice president of General Telephone Corp., testified regarding the price offered for the two properties by his company. Another USITA witness, Daniel W. DeHayes, executive vice president of the Ohio Independent Telephone Association, said that the Independents are greatly concerned over the future of two properties in Ohio if the FCC gives the Bell company the green light to take over the Wisconsin Independent properties. After the filings of briefs and the concluding argument of counsel, the examiner's opinion will provide the first clew to what the FCC will do in this important key case in the field of Bell-Independent relations.

Private Line Rates

This week the FCC hears arguments on the troublesome private line telephone rate reduction complaint filed earlier this year by the General Services Administration (GSA). The GSA is generally known as the "housekeeping division" of the federal government. It is supposed to look after the maintenance, construction, and other services in connection with the buildings and facilities used by all the other federal departments, bureaus, agencies, etc.

As part of its duties, GSA checks up on Uncle Sam's housekeeping bills. And that is how GSA happened to file a complaint with the FCC asking that the AT&T's Long Lines rates on private line service be cut 25 per cent. There are other defendants in the case also, including Western Union Telegraph Co. and United Press International, which furnishes some private line services to federal agencies. Uncle Sam uses a lot of private line services and a 25 per cent reduction would be a real saving if it comes off.

But AT&T Long Lines insists that it should not come off and that the GSA has no basis for a complaint for any reduction whatever. Specifically, Long Lines has objected to any immediate or "interim" reduction as requested by GSA. The evidence, as to just how much private line service costs or ought to cost, has all been submitted on both sides to the FCC Examiner J. D. Bond. What remains now is for the lawyers to sum up their arguments and submit their briefs, after which the examiner will hand down a decision, and the commission at the top level will either approve or disapprove of the same.

Examiner Bond has issued an order directing Long Lines and Western Union to produce proposed rate schedules for private line teletypewriter grade services later this month (June 26). The FCC staff takes the position that the cost study covered by the case so far warrants some revision in rate schedules. But Long Lines has opposed this on grounds that proper intra-rate relationships and competitive problems require that more time be taken on any changes in the rates.

FCC Wants Advice on TV Aids

The telephone industry, among others, has been invited by the Federal Communications Commission to comment on a number of recent developments in the nature of supplementary services which have grown up in the wake of television in the small towns and wide-open spaces. The FCC has invited comment from all interested parties before June 27 to a series of 14 questions dealing with community antenna systems, TV translators, TV satellite stations, and TV repeaters.

FCC has issued a so-called "Notice of Inquiry" (Docket No. 12443) in an effort to formulate some method of dealing with all of these aids to TV reception in small communities and sparsely settled areas.

Some of these are radio frequency amplification and corrective devices which are probably subject to the FCC's jurisdiction under the Federal Communications Act. Others are strictly wired antenna extensions and connections which are probably not subject to the jurisdiction of the FCC because they do not themselves involve radio frequency operations. But, the FCC wants to get the whole picture.

By way of background, the FCC's "Notice of Inquiry" points out that there are numerous small towns and sparsely settled areas where there are just not enough people to support a regular television station. As a matter of fact, there are only 325 communities in the United States which have one or more local TV stations. In contrast, there are 1,700 communities which have local radio stations. This means that if people in these small towns want to see any television they have to tune into the nearest town or some near-by town from which they can get adequate reception. Sometimes this is possible, and the reception is surprisingly good at considerable distances.

In other situations, however, especially in mountain terrain, reception may be so poor that some supplementary assistance is required. And, supplementary assistance has been made available with and without FCC permission. The community antenna systems consist of wired antenna extensions to serve a number of participating TV set owners. They are not subject to FCC jurisdiction for that very reason. They use wires rather than radio frequencies. But, the FCC is going to consider the problem anyhow as part of the picture.

Also in this category is the combined use of TV community antenna systems and common carrier or telephone company operations which pick up signals at a distant point and transfer them satisfactorily to a point where the signals can be fed into local cable distribution systems.

The FCC reports that there are now in existence approximately 550 community antenna TV systems in just about as many communities, serving an aggregate of half a million subscribers. When we consider that a "subscriber" in this sense equals one TV set operating in a household in which an entire family may be living, the number of TV viewers actually depending upon

(Please turn to page 36)

Efficient Operation and Its Rewards

Illinois commissioner describes general reaction of regulators to a telephone company that is efficiently managed and gives good service. He holds the viewpoint that "good earnings are the key to good and the most economical service over the long-run."

By CYRUS J. COLTER*

IT IS ALWAYS a pleasure to see again many of my friends in your association and to make new acquaintances among the people who make up an organization that over the years has played such a vital role in the lives and well-being of the people of our state and it is an honor to have been invited to address you.

Many possible subjects for discussion came to mind upon my acceptance of your invitation. A regulatory commission, in these days, is faced with many problems, with many of which you are no doubt broadly familiar. I dare say, however, that it also has problems that you, as utility management, have seldom had occasion to consider at any great length. What I have to say here today is, of course, my own personal reaction—that of just one commissioner—to the broad problem that I would like to discuss with you, and the problem, I think, is pertinent not only to the telephone industry but to the utility industry as a whole.

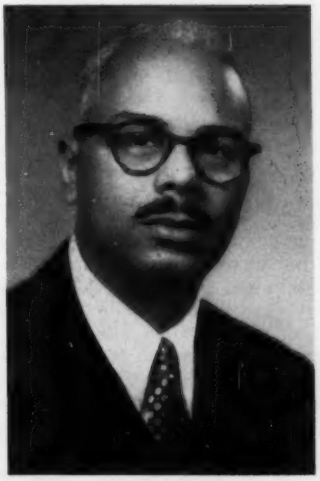
I am afraid, however, that the subject of my address does not describe too precisely just what I have in mind. The title that I pulled out of the air, so to speak, is "Efficient Operation and Its Rewards." I chose the word "operation" because I had something in mind that goes beyond the mere idea of service. Efficient operation on the part of a utility company includes rendering good service but, in my judgment, goes farther, as I shall try to demonstrate.

I use the word "rewards" in the title, but I do not mean it in any narrow monetary sense. What I had in mind was the undoubted advantage that accrues to a company that has a record of efficient operation whenever that company, for any reason, must do business with its regulatory commission. To put it another way, I thought it might be of interest to you, as management and operating people, to get some idea of what a commission thinks about in its general approach to the problems of a company, from month to month and from year to year, through the regular commission procedures.

Having just said that the idea of a company giving good utility service is only part of the general idea of efficient operation, I do want to discuss briefly, nonetheless, the question of service in order that I may pass on to some of the other aspects of efficient operation. The manner in which a commission may approach many of the problems with which it has to deal is often clearly marked out by law. This is largely the case with the question of service.

Ohio Case Cited

One of the best-known recent cases, decided in 1953, involved the Elyria Telephone Co. in Ohio. The case may be found in 110 North Eastern Reporter, 2nd, at page 59. In that case the Ohio commission approved a rate increase as just and reasonable. There was a great deal of objection to that action and after a rehearing the commission reduced some of the proposed rates and suspended all of the others. It also reinstated the old rates until certain improvements in service and facilities were made. A restriction was also placed on future dividends of the company. On appeal the Supreme Court of Ohio reversed the commission on both of these points, holding that the commission had authority to regulate both rates and service, but that it could not make adequate rates contingent upon service improvements.



C. J. COLTER

This case presents that particular legal issue about as clearly as you would ever expect to find it. There was no controversy in court about the value of utility property and, so far as I can find, there was no argument about the proper rate of return or the proper expenses.

Apparently, in the rehearing, the commission made no attempt to change its previous findings on any of these issues. It simply refused to allow a fair return as long as the service was unsatisfactory. The court held that the commission could not do this and particularly pointed out that if the utility was not allowed a fair return it would not be able to attract the capital required to buy the equipment needed to improve the service. The commission had the duty to fix fair rates. It could also order service improvements, but it could not make one dependent upon the other.

The Florida commission tried to do

*Mr. Colter is a member of the Illinois Commerce Commission. He gave this address at the recent annual convention of the Illinois Telephone Association.

the same thing at about the same time. *Florida Telephone Company* v. *Carter*, 77 Southern Reporter, 2nd, 508 (1954). It found that the Florida Telephone Co. was entitled to a rate increase of 18 per cent but it refused to order any increase so long as the company's service was not improved. Perhaps, if the commission had merely tried to reduce the rate of return it might have been successful, but when it withheld a revenue increase of 18 per cent it was withholding all of the earnings and some of the expenses, too. The Florida Supreme Court set aside the order and cited the Ohio case.

Rates, Service Separate

The reason which it gave for reversing the commission was that, in the Florida law, service and rates are dealt with in separate sections of the statute and held in essence that these two subjects must be covered in separate proceedings. This, again, is a case in which the extent of the rate limitation was so great that the telephone company had very little chance of getting the capital needed to correct its poor service.

In the case of *City of Elizabeth (New Jersey)* v. *Board of Public Utility Commissioners* (123 Atlantic Reporter 358), the New Jersey commission allowed an increase to a water company which was not giving adequate service. The city of Elizabeth appealed the order but the commission was affirmed. The court said, ". . . a starved utility is in no better position to render proper service than a starved horse or a motor car without fuel."

I think this is sound law and it does not render a commission impotent in dealing with cases of bad service, even aside from citation cases which it may institute to improve service. The commission still has considerable discretion as to the exact level of rates which it may prescribe. It must determine the fair rate of return and the fair value of the plant, but I do not have to tell you that these findings necessarily involve much discretion on the part of the regulatory body.

Even after a commission has arrived at its conclusions on these points, there still remains a zone of reasonableness within which rates may vary. This is very well shown by a recent case in the state of Maryland in which both the city of Baltimore and a streetcar company appealed from the commission's rate order. *Baltimore Transit Company* v. *Public Service Commission*, 112 Atlantic Reporter, 2nd, 687 (1955). The court denied both appeals and sustained the commission. It rejected the city's appeal because even poor service did not justify confiscatory rates. It denied the utility's appeal on the ground that the commission had used discretion so long as the rate which it fixed was above the confiscatory level.

It has been my experience that a company whose service to the public is below standard is also a company that must be watched on other matters as well. Generally, its books and records are not properly kept and its reports to the commission are not filed on time or, when filed, are not properly prepared. At this point, you will see that I am attempting to show that a company's shortcomings in this kind of a situation go beyond failing to render proper service to the public and go over into the area of inefficient operation generally.

And, this is bad, because a commission's confidence in the efficiency of a company's whole operation is shaken. It cannot be sure, without extended investigation, that all claimed items of expense are valid; that there has been a determined and effective effort to keep operating costs down; that expenditures were made for the proper purposes; that certain reserves are proper; that proper credit is taken for all proper revenues; that the company's rural line extension policy is fair; and that a conscientious effort has been made to sell the service and maintain good public relations.

Management's Prerogatives

Now, we know that management has certain prerogatives—a special domain, so to speak—on which a commission may not trespass. This is as it should be because good management knows more about its problems and how to deal with them than any public official can know. However, when a commission's confidence is shaken on some of the counts I have just enumerated, it cannot help having some misgivings about making additional gross revenues available to a company when it cannot be sure that the result will be a definite strengthening of the company's over-all financial condition so that it may more effectively carry out its responsibilities to the public and to its investors.

This attitude on the part of a commission does not stem from a hostile feeling toward the company, that makes the commission want to punish it. That would be wrong as well as short-sighted, because it is the public that would suffer. The commission, in this kind of a situation, has got to be dispassionate and philosophical, realizing that a small minority of poor operators will always be with us, and then take such steps as it can to encourage improved operation by pointing out its advantage from just a regulatory point of view alone—that good earnings are the key to good service and to the most economical service over the long-run.

Competition for Dollar

I do not need to tell you that telephone rates and telephone service always have a very real and practical effect on each other in terms of how much service the public wants to buy and how much it is willing to pay for that service. Even though a company has a monopoly of the telephone service in a particular territory, it is still competing with every other kind of service for what it hopes will be a reasonable share of the customer's dollar. Perhaps we can call this a sort of regulation by competition or by economic law. But, this is primarily the responsibility of each company's management and a commission can only authorize an earnings level which the utility must then go out and attempt to realize through the sale of its service in competition with all other business.

I have found in some situations that there have been expressions of opinion to the effect that there is too much regulation. If this is true, it implies an awareness on the part of utility management that it is able to stand on its own ability, initiative and resourcefulness to solve its many problems, and also an awareness that there is a definite limit to the really effective assistance that a commission can give, although it be at all times willing.

A rate increase will not solve all problems. But, I think that those of you who know me know my views on the subject of utility earnings and I hope that I will not be tedious if I quote from a concurring opinion that I wrote back in 1952 in a General Telephone Co. rate case, reported in 98 Public Utilities Reports, New Series, 301. I quote:

" * * * the increase in rates granted here will enable the General Telephone Co. of Illinois to continue to finance its large program of plant construction and improvement. This program is absolutely necessary in order to provide its subscribers with the caliber of telephone service which the public wants and deserves.

"The fact that this company has raised large sums of money in the past is no warrant for assuming that it can continue to do so, since the suppliers of capital will inevitably look askance at the continuing demand for money to provide service unless the company receives revenues with which to supply the returns which capital must have.

"In my view, the net result of this approach is more in the public interest than a course of regulation which, it seems to me, must ultimately eventuate in deterioration in the quality of service to the public."

Let us look now at the other side of

(Please turn to page 50)

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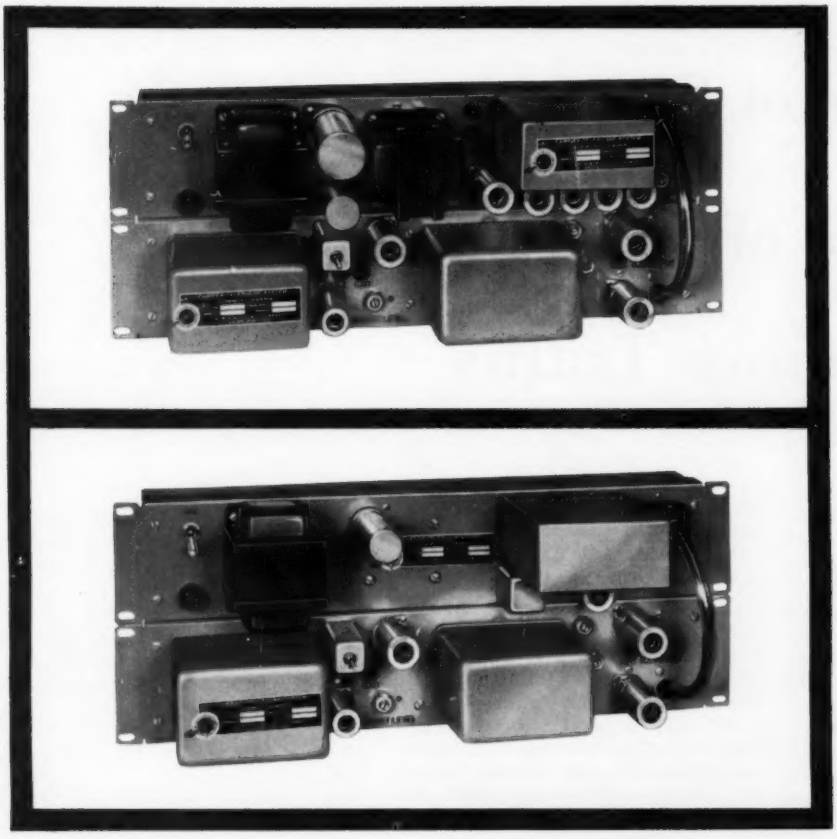

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Significance of Proposed Elimination of Separate Toll Switching Trains

By A. C. DAVIES*

WE ARE going to talk about trains. For an engineer to talk about trains seems reasonable and logical. However, I'll let you in on a little secret—these trains are not that sort and I'm not that kind of an engineer. All right then, what kind of trains *are* we going to talk about? The answer is—switching trains in general and *toll* switching trains in particular.

In order, therefore, to approach this subject in an orderly manner, we will ask ourselves three questions:

(1) What is "a separate toll switching train?"

(2) Why do we have a separate toll switching train?

(3) How can we set about eliminating it, and, if we can, what will be the effects of so doing from the points of view of engineering, traffic and service?

Question No. 1—What is meant by a separate toll switching train? The answer to this is best demonstrated graphically so, at this point, we have *(Fig. 1)*. This slide shows a typical, simplified, schematic trunking diagram of a step-by-step automatic office. The local switching train terminating in local connectors equipped with tone signals only is shown to the left of the vertical dotted line. The toll switching train which terminates in toll, or more often in combination local and toll, connectors equipped with flashing signals is shown to the right-hand side.

Either the toll 1sts or the toll 2nds could be what are known as toll transmission selectors. As the name implies, these are designed to boost the transmission of the call, in addition to performing their regular functions as selectors.

*Mr. Davies is General Equipment Engineer of General Telephone Co. of the Southwest, San Angelo, Tex. He gave this address at the recent convention of the Texas Telephone Association.

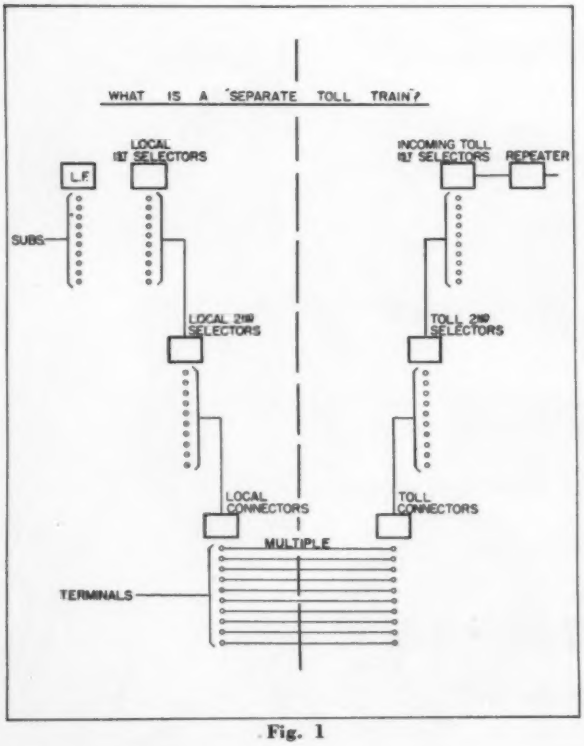


Fig. 1

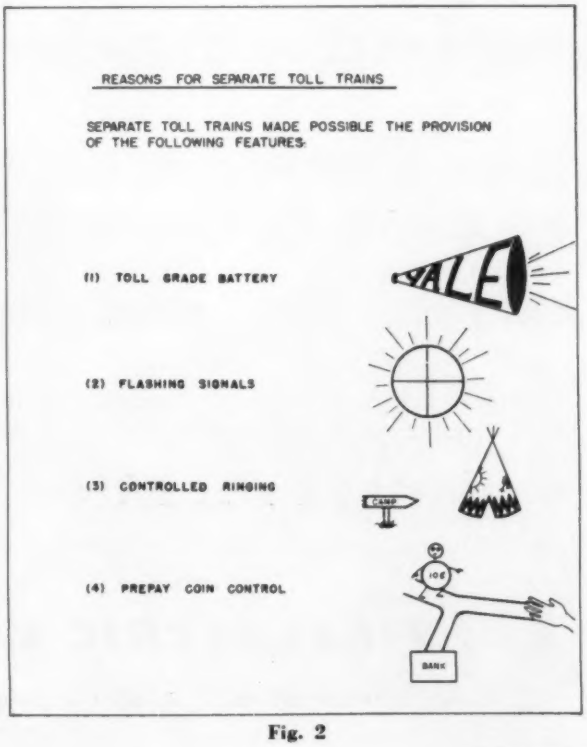


Fig. 2

It will be seen that the incoming toll train is quite separate and distinct from the local train, the only equipment common to both trains being the connector banks.

Incidentally, I imagine that you can see the resemblance to a train of railroad cars with their connecting links.

Question No. 2—Why do we have a separate toll switching train? The answer to this question goes back to the time when station instruments were not as efficient as they are today. In order to provide the best possible grade of transmission on long distance calls, a separate toll train was provided. This train incorporated a higher grade transmission battery applied to the talking pair.

Subsequently, the need for other features was conceived and these were added to the toll train as they were developed. These features include flashing signals, controlled start of ringing and prepaid coin control.

Fig. 2 shows the four main reasons up to recently for the existence of separate toll trains.

The hieroglyphics to the right of *Fig. 2* are for the benefit of anyone who is either (a) a red Indian, (b) an ancient Egyptian or (c) who cannot read!

However, recent progress in the improvement of station instruments has eliminated the need for the original transmission requirement of a special toll grade battery supply.

This leads to *Question No. 3*—How can we set about eliminating entirely the need for separate toll trains?

We have seen that there is no need for a separate toll train from a transmission standpoint. Let us take a look at the problems involved in either eliminating the other three features or, alternatively, developing other means of providing the same features without the use of a separate toll train. If we can do that, we can state categorically that there is no need at all for separate toll trains.

Elimination of Flashing Signals

Flashing signals for line busy, no circuit, and reorder are needed now only on operator-dialed, sent-paid station traffic. With all other types of traffic, the operator remains on the line until conversation starts or until a report on the call can be given to the customer. The operator would, therefore, hear an audible signal, ie., ringing, by, nc, recorder or a recorded announcement. (This presupposes, of course, that some type of audible signal will always be provided.)

On the sent-paid station traffic, in the absence of flashing signals, it will be necessary for the operator to remain on the line until some audible evidence of the progress of the call is received. This will involve some operating expense, but the cost should be comparatively small for two reasons:

(1) On most of this sent-paid traffic, the operator now remains on the line to secure the calling number as an overlap operation while the call is being advanced, and

(2) The amount of this traffic that is operator-handled will reduce substantially as more and more offices go to Direct Distance Dialing (DDD).

Effect on Service

Far from the elimination of flashing signals causing any deterioration of service, it should actually cause the service to be better. Since the operators will be required to remain on the line until ringing starts or an audible signal is received, the service will be more personalized and, if a call blockage is encountered, the operator will be aware of it immediately and be able to take any further action that is required.

Answer or disconnect supervision is, of course, not affected by the elimination of flashing signals.

As a corollary to this item, the Bell company decision to abolish the provision of flashing signals as a requirement for connection to the intertoll network is of immediate importance to the Independent industry. There must be literally thousands of small central offices throughout the country that are not equipped with flashing signals. The cost of modifying these offices to provide flash signaling in order that they may qualify for connection to the intertoll network would be quite substantial. Since flashing signals are no longer necessary, a large number of small Community Dial Offices (CDO) that were not previously eligible, because of lack of this feature, can now be connected to the intertoll network without incurring the expense of this modification.

Another factor that favors the elimination of flashing signals is the growing interest in inward dialing to large PABX's. One of the large expenses involved in providing this service is the modification of PABX equipment to provide flashing signals. Since the flashing feature is no longer required, this cost is eliminated.

Controlled ringing enables the called telephone line to be seized without immediately ringing the telephone, and also permits a telephone to be held with the receiver on the hook and rerung at the will of the operator. The elimination of these features would present some operating problems, particularly on originating toll board calls that are delayed because of NC or BY conditions.

Without the controlled ringing feature, when an NC or BY condition is encountered within the delay interval, either of two operating methods could be employed. One method would be for the operator to ring the *calling* party before each attempt is made, in which case she must dismiss him if she is unable to complete the call. The alternative method would be for the operator to ring the *called* party without first securing the calling line. The latter method seems preferable although it does contain an element of risk in that there is a possibility that in the meantime the calling party may have become busy, in which case the operator would have to dismiss the called party.

The possibility of the calling line becoming busy could be minimized by the operator holding the calling line on the CLR trunk. Then, after dialing the called telephone and hearing the start of ringing, she would release the recording trunk and immediately dial the calling number over an outgoing switching trunk. The calling line would thus be unguarded for the short time it takes the operator to release the recording trunk and dial the calling number.

In considering the effect on service of this suggested procedure, it is interesting to note that only a relatively small proportion of the total toll calls are involved. The Bell company estimates that (assuming no DDD) the operators are now called upon to make subsequent attempts on about 10 per cent of the toll board calls. With customer dialing of station-to-station traffic, this should eventually reduce to about 5 per cent. Future trends, such as improved circuit conditions and upgrading from four-party to two-party or one-party, will tend to lower still further the proportion of calls affected.

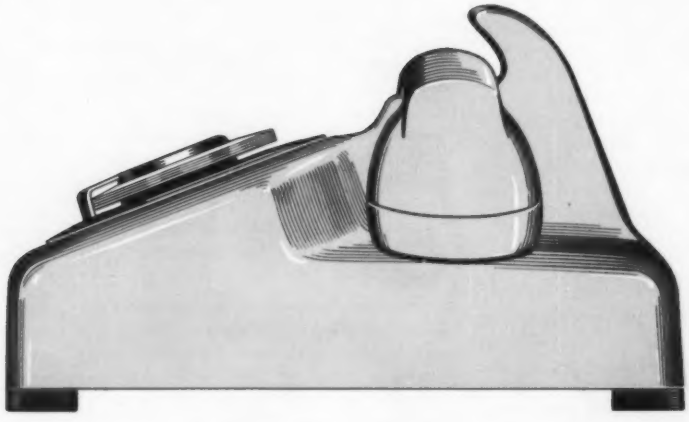
In this regard, it is worthy of note that the Bell company traffic operating practices have now been revised to permit handling of delayed calls on an immediate ring basis.

Prepay Coin Control

The Bell company has, for some time, been conducting experiments with a new system of prepay coin control for operation with local type trains. This is known as the "in-band" system and utilizes MF signals within the voice frequency band—hence the term

(Please turn to page 28)

LEICH 100 TELEPHONES



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Transmission and reception are extremely clear and life-like. The Leich 100 network assures improved service on even your longest, most heavily loaded lines.

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manufacturers of telephones, switchboards and related apparatus since 1907

"in-band." Only two wires would be required and, being an MF system, it would not have the range limitation of the present three-wire system. However, latest reports are that the laboratories are experiencing setbacks in the development of the system and field trials recently have been very disappointing. These troubles will no doubt be overcome in time but, for the present, this system is not yet a practical reality.

However, there is a system already available from one of the Independent manufacturers which, in my opinion, overcomes the prepay coin control problem very neatly. This is known as the "Local Prepay Paystation System." This system actually operates on a prepay basis on local calls and on a postpay basis on toll calls. From the user's standpoint, however, there is no difference between the two. This eliminates the annoyance felt by subscribers who are used to city prepay service when they encounter postpay service in a smaller community.

As the name implies, the coin telephone functions as a prepay telephone for local dial calls. A coin is required to be deposited before dialing can proceed. Automatic coin-return and coin-collect functions are controlled by simple auxiliary relay circuits connected between the telephone line and the regular line equipment. The control voltages for operation of the telephone coin mechanism are the regular 48-volt central office battery, plus a negative 110-volt dc potential.

Fig. 3 shows a typical schematic trunking diagram of this system.

When a toll call is placed, the initial coin is returned as the CLR trunk is seized. The coin mechanism then resets to the "collect" position, so that coins deposited at the request of the operator will drop directly into the coin receptacle. There can be no return of coins and the operator has no control. Thus, toll operation is essentially on a postpay basis.

It is anticipated that the principal application for the local prepay system will be in the smaller offices which may require only a few paystations. For such applications the lines serving local prepay stations will be terminated on "line adapters," which precede the regular line equipments. The line adapters, comprised of relays, are connected to a source of negative 110-volt, dc, for partial control of the coin mechanism. Regular 48-volt central office battery provides the second voltage source to complete the cycle of operations of the mechanism.

Please note that only negative 110-volt dc is required, whereas, in the conventional prepay instruments both negative and positive 110-volt are employed. The negative 110-volt potential can be obtained by using a negative 60-volt booster battery to supplement negative 48-volt central office battery. It may be desirable, however, to employ a rectifier supplying only negative 110-volt from commercial power or from some other available source.

The coin mechanism in the paystation telephone is arranged to collect deposited coins with reversed battery (48 volt) from the local connector when the called party answers. At the termination of the local call, with the paystation receiver on hook, the line adapter impresses negative 110-volt on the paystation line to restore the mechanism to normal.

The method of operating the local prepay station on a postpay basis on toll calls simplifies the central office equipment requirements and thus provides a less costly arrangement for a small group of paystations. At the same time, it permits the same procedure for placing a toll call as for a conventional prepay station.

With the handset off hook, dial tone from the central office is returned when a local trunk is available. This assures a clear circuit to central office equipment before coins are deposited. The dialing circuit is blocked until a dime or two nickels are properly deposited. Following the dialing of the toll operator code, and as soon as a CLR trunk is seized, the original coin deposit is automatically returned; the coin mechanism inside the paystation telephone then re-operates to the collect

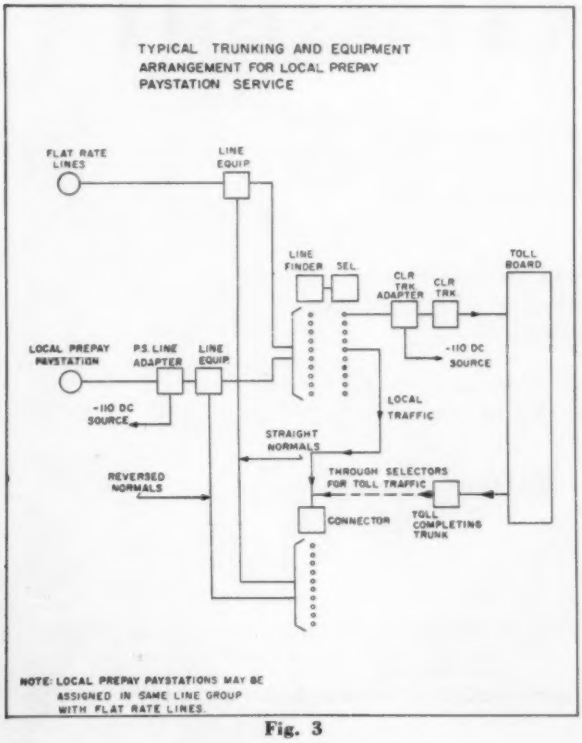

Fig. 3

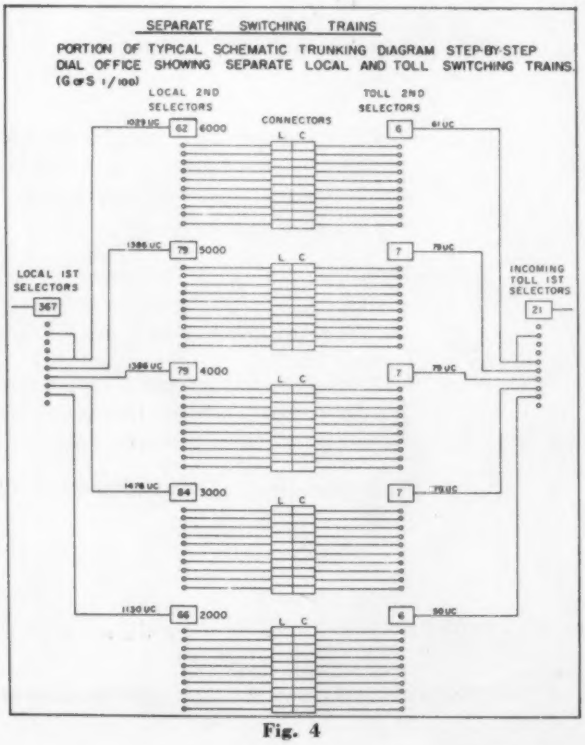

Fig. 4

Jacketing of an ALATHON® polyethylene resin for uninterrupted service under severe conditions

"Single-pair distribution wire with integral insulation jacket of Du Pont ALATHON is perfect for the severe conditions in our area," says Mr. John Benedict Ackley, President of the Copake Telephone Company in upstate New York.

"This tough, abrasion- and moisture-resistant jacketing has practically eliminated storm damage and provided our subscribers with uninterrupted service. Our maintenance costs have been cut considerably.

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Have your supplier explain the advantages of wire and cable constructions with insulation and jacketing of Du Pont ALATHON polyethylene resins. Send coupon below for your copy of the new WC-1 booklet.

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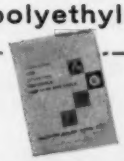

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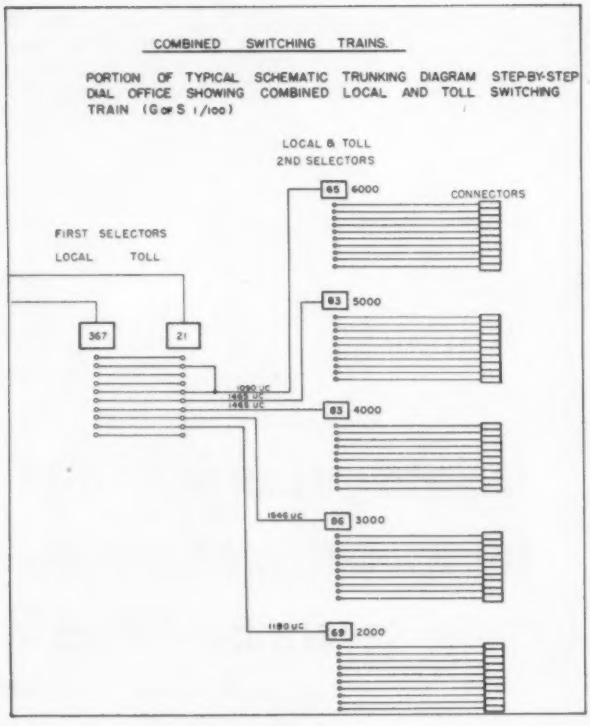

Fig. 5

COMPARISON OF EQUIPMENT QUANTITIES AND COSTS.

SEPARATE VERSUS COMBINED SWITCH TRAINS

2ND SELECTORS

SEPARATE TRAINS

	SWITCHES		SHELVES-20SW		BANKS 10 SW	
	LOCAL	TOLL	LOCAL	TOLL	LOCAL	TOLL
LEVEL 2	66	6	4	1	7	1
LEVEL 3	84	7	5	-	9	1
LEVEL 4	79	7	4	1	8	1
LEVEL 5	79	7	4	-	8	1
LEVEL 6&9	62	6	4	1	7	1
SUB TOTALS	370	33	21	3	39	5
TOTALS	403		24		44	

COMBINED TRAINS

	SWITCHES	SHELVES	BANKS
LEVEL 2	69	4	7
LEVEL 3	86	5	9
LEVEL 4	83	5	9
LEVEL 5	83	5	9
LEVEL 6&9	65	4	7
TOTALS	386	23	41

A DIFFERENCE OF 17 SWITCHES, 1 SHELF AND 3 BANKS.
REPRESENTING A SAVING OF APPROXIMATELY $3640.00

Fig. 6

position under control of the (special) CLR trunk and without any action by the operator. A class-of-service tone is transmitted to the operator upon insertion of the answering cord. As previously mentioned, coins deposited for toll charges at the request of the operator, drop into the coin receptacle and cannot be returned. This feature is comparable to the conventional post-pay operation.

At the termination of an outgoing toll call from the local prepay station, the line adapter functions to reset the coin mechanism to normal when the handset is replaced on hook.

An inward call to a local prepay station conditions the line adapter to operate the coin mechanism to the "collect" position so that coins deposited for "inward collect" toll calls will drop directly into the coin receptacle. The connector normals to the paystation lines are reversed to facilitate this automatic control. At the termination of an inward toll call, the line adapter impresses negative 110-volt on the paystation line to restore the coin mechanism to normal.

Special CLR trunks are required, with a source of negative 110-volt dc. Where the paystations are not segregated, all CLR trunks must be treated alike (for use on existing CLR trunks, applique circuits are available.)

From the standpoint of trunking efficiency there is an advantage in having a common group of CLR trunks for both regular and paystation lines. The cost of equipping all CLR trunks in a large group for paystation service may, however, determine whether a separate group for local prepay paystations is more economical than a common group.

Equipment Economies

It is interesting to see what savings in trunking and, hence, in equipment costs can be achieved by combining the local and toll traffic through a step-by-step office.

Fig. 4 shows a portion of the schematic trunking diagram for a typical medium-sized step-by-step office with separate local and toll switching trains. The figures on the lines represent the traffic over that route in unit calls. The figures in the boxes are switch quantities based on a grade of service of 1 in 100 for both local and toll trains. The method of arriving at the switch quantities shown is as follows:

Local Train

Traffic from 367 first selector banks

	Unit Calls	*Unit Calls Per Selector*
Level 2	1130	3.08
Level 3	1476	4.02
Level 4	1386	3.78
Level 5	1386	3.78
Level 6 & 9.....	1029	2.80

Grade of Service—1 in 100.

Level 2—At 3.08 unit calls (UC) per selector, 28 trunks are required per sub-group of 160 first selectors; or 56 per 320. Forty-seven first selectors are left over, with a traffic of 47 × 3.08 = 145 UC. The number of trunks required is 10. Thus the total number of third selectors required in this group is 56 + 10 = *66 selectors.*

Level 3—At 4.02 UC per selector, 36 trunks are required per sub-group of 160 first selectors; or 72 per 320. The remaining 47 selectors carry a total of 47 × 4.02 = 189 UC, which requires 12 trunks. Thus the total number of third selectors required in this group is 72 + 12 = *84 selectors.*

Level 4—At 3.78 UC per selector, 34 trunks are required per sub-group of 160 first selectors; or 68 per 320. The remaining 47 selectors carry a total of 47 × 3.78 = 177 UC, which requires 11 trunks. Thus the total number of third selectors required in this group is 68 + 11 = *79 selectors.*

Level 5—Same as Level 4 above.

Level 6 Plus Level 9—At 2.80 UC per selector, 26 trunks are required per sub-group of 160 first selectors; or 52 per 320. The remaining 47 selectors carry a total of 47 × 2.80 = 132 UC, which requires 10 trunks. Thus the total number of third selectors required in this group is 52 + 10 = *62 selectors.*

Toll Train

	Unit Calls	*Third Selectors Required*
Level 2	50	6
Level 3	70	7
Level 4	79	7
Level 5	79	7
Level 6 & 9.....	61	6

Fig. 5 shows the same office with the local and toll terminating traffic com-

(Please turn to page 52)

"Brainy" weather machine—electronic computers, arranged as battlefield console, automatically figure high altitude weather reports from information radioed down by balloon-borne weather station. As dish-shaped antenna automatically tracks the balloon, computers stamp out vital pressure, humidity, temperature and wind readings. The system was developed and designed by the U. S. Army Signal Engineering Laboratories at Fort Monmouth. Two members of the USASEL are operating the system.

Signal Corps Observes 98th Anniversary

By RAY BLAIN

THE United States Army Signal Corp's 98th Anniversary on June 21, 1958 finds national attention focused on science for defense more than at any other time in our peacetime history. The art of war, which once required little more than a strong arm and an elemental application of tactics and strategy, has become truly scientific.

Combat soldiers of the future will have an arsenal of advanced electronic weapons equaled only in the pages of science fiction. Many of these futuristic devices, vital to swift atomic age maneuvers, have been developed and proved in the past two years by the U. S. Army Research and Development Laboratory at Fort Monmouth, N. J., and the Army Electronic Proving Ground at Fort Huachuca, Ariz.

In the early days of the Army Signal Corps, urgent combat messages were sent from mountain to mountain by flashing mirrors, semaphore flags, or blinker lights. Wire telegraph was the only means available to send messages over considerable distances. Back in 1860, when Maj. Albert J. Myer was the first Chief Signal Officer, the basic communication equipment consisted of flag kits, a white flag with a red square in the center for use against a dark background and a red flag with a white center for use against a light background and torches for night use. (These are the elements that make up the familiar Signal Corps insignia.) Telescopes were required for reading the flags or torch wigwag motions at distances up to 20 miles.

Contrast the old methods of the past with the high efficiency communication systems of today and tomorrow that utilize wire and radio equipment to provide almost instantaneous contact between forward elements and headquarters on the battlefield. Consider, also, the remote control drones which, equipped with special Army Signal Corps cameras, can soar far into enemy territory to obtain valuable information without endangering a pilot.

The American soldier of the future will have the most refined communications system in the world, capable of delivering vital messages thousands of miles in seconds when necessary. One new radio set designed for the coordinated network is so powerful that it can reach any spot on earth. Another bounces signals off the troposphere, using inflatable dish antennas for extended range.

All army radio systems, from the

(Please turn to page 34)

Now! You can sell a P-A-B-X

to meet any business need... and get stock delivery, too!

At Automatic Electric, P-A-B-X orders come in often...go out quickly. No wonder! *Automatic stocks a P-A-B-X board to meet every need.* That's mighty comforting assurance to keep in mind. It means you can offer businesses, large and small, a ready-made P-A-B-X system. It means you can get shipment, *pronto!* As a result, you'll build P-A-B-X sales, as well as satisfied customers.

Keep this in mind, too. The backbone of Automatic's P-A-B-X equipment is quality. In fact, components are identical with those used in Strowger Automatic central office equipment. This is why telephone companies find Automatic's P-A-B-X boards dependable in performance—and almost a stranger to maintenance.

To supplement the many P-A-B-X boards, Automatic provides a wide range of "Auxiliary Services" to meet special needs:

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- Executive Right-of-way
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- Code Call
- Telephone Dictation
- Paging Telephone
- Key-calling
- Conference Services
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- Secretary Answering
- Direct Line

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Here's everything you need to promote P-A-B-X. This kit was prepared by P-A-B-X sales experts, and is built around promotions successfully used by many telephone companies. In it, you'll find a step-by-step selling plan, a complete catalog, handy individual equipment and service folders, an 8-page brochure for mailing or personal presentation, suggested sales letters, sample survey form and proposal—even a sample contract. All this material is yours for the asking. Just write: *Automatic Electric Sales Corporation, Northlake, Illinois. Or call Fillmore 5-7111.*

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A member of the General Telephone System—One of America's great communications systems

GENERAL TELEPHONE SYSTEM

smallest portable field set to the giant *World Spanner*, complement each other to form a swift, reliable communications team.

To protect our troops from enemy mortar fire, a new radar with a built-in electronic "brain" can pinpoint the mortar nest after tracking only one projectile. Its readings guide our artillery in wiping out the position.

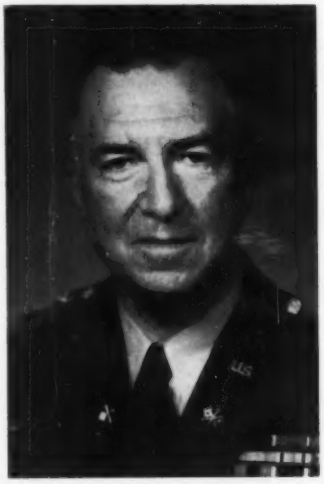
Another radar system, the *Silent Sentry*, can spot enemy troops moving in the dark. This is the smallest known military radar.

Future foot soldiers will also be protected by a fountain pen-sized radiation detector that slips into the shirt pocket and warns of dangerous atomic doses.

Even army atmosphere observing has gone electronic. A special military radar developed by the Army Signal Corps can detect and analyze rainstorms up to 200 miles away—and can help to predict within minutes when they will strike. Another piece of electronic equipment has been developed with a high-speed "brain" that computes winds and other meteorological conditions high aloft, using radio signals sent down from a balloon.

The Army Signal Corps has also developed *Missile Master*, the air defense control center for *Nike* missles. This system, complete with computers and advanced search radars, now stands guard over the Washington-Baltimore area.

Anniversary Message of Chief Signal Officer



The 98th Anniversary of the Army Signal Corps which we commemorate on the 21st of June marks the close of another period of progressive achievement toward our singular goal of military preparedness—and the beginning of another year in the service of national security.

While we emphasize, this year, our tremendous advances in research and development, the Army Signal Corps can rightfully be proud of our collective contributions and distinguished accomplishments in all fields of endeavor.

To all of you—military and civilian—I extend my warmest personal wishes on this anniversary. I commend you for your zeal and industry in the past, and look confidently with all of you to the future.—J. D. O'CONNELL, Major General, USA, Chief Signal Officer.

Army Signal Corps research and development have produced other futuristic devices: A camera that can take a picture 30 miles away, a tiny drone that takes TV pictures, a rugged radio set that clips on a soldier's belt, an ultra-high-speed teletypewriter, a method to survey great distances by radar, an advanced all-electronic telephone switching system, and many others.

These advanced systems are designed to operate in close coordination with the Army's atomic punch—its missile artillery which depends primarily on electronics for guidance.

LEFT PHOTO: Towering in the foreground is the U. S. Army's new, powerful "Space Sentry" radar located at Fort Monmouth, N. J. Space Sentry was used in January to insure close and accurate tracking of the Army's "Explorer" by calibrating the Minitrack equipment throughout the western hemisphere and the west coast of Africa. The 50-foot "Diana" radar is shown in the background. RIGHT PHOTO: Army's newest radar mortar locater, which can spot the location of enemy mortar fire, is set up in the field by Pvt. Edward Rhodes of New Britain, Conn., left, and SP3 Samuel Humes of New Paris, Pa. The new finder was developed at the Army Signal Corps Engineering Laboratories at Fort Monmouth, N. J.

The Army Signal Corps during the past two years has made significant contributions to pure scientific research, destined to pave the way for even more advanced field equipment.

For instance, *Diana*, the powerful radar with its 50-foot dish antenna, has continually beamed signals at the moon to observe electronic reflections. At its site, the first radar contact was made with the moon in 1946. Since then, *Diana* observations have pointed the way to important radio advances. The later and larger *Space Sentry* radar with a 60-foot dish antenna has been used to calibrate world-wide satellite *Minitrack* stations.

In studies of upper atmosphere conditions, army scientists have fired a series of research rockets to great altitudes. Army solar battery systems were sent high aloft to determine just how they would operate in a future satellite and are now being used in the *Vanguard* rocket.

In recent satellite efforts, Army Signal Corps research has provided high-yield batteries and rugged electronic parts and systems for the vehicles. It also provided valuable tracking data.

One of the future *Vanguard* satellites, a 21-inch sphere that will send back electronic images of world-wide cloud distribution, is being instrumented by the Army Signal Corps.

Every effort is being made to increase communication speed by substitution of electronic for human reaction time. Many functions of the human brain are being replaced by electronics. The Army Signal Corps Research and Development Laboratory is striving to bring to the battlefield automatic data processing systems using a family of computers. Even now, this family has reached a stage of development that promises striking new capabilities in logistics, administration, intelligence and tactical operations.

These electronic computers will be able to exchange data with each other, their automatic programming permitting rapid changes of machine routine when a command desires. Within the range of research and development are machines that will electronically scan typewritten or printed pages, reduce them to data form for storage or immediate transmission to eliminate time-consuming clerical and typing operations.

Modern computer applications to the problem of the military are endless. In logistics, the inventory and assignment of personnel and material becomes almost instantaneous. Combat surveillance information concerning enemy and friendly troop movements, missile and artillery concentrations and a

REA OK's 3 Telephone Loans

Almost 5,000 rural families will receive new or improved telephone service as a result of 2.5 million dollars in loans approved last week by the Rural Electrification Administration, the U. S. Department of Agriculture announced on June 4. Of these families 2,248 will receive telephone service for the first time.

The three loans were approved to borrowers in Indiana, Minnesota, and Pennsylvania as follows:

The Huntingdon & Centre County Telephone Co., Warriors Mark, Pa.; $530,000; May 27.

Loan funds will be used by the new borrower to improve service for its 804 existing subscribers and to furnish initial service for 269 rural families. The company is now furnishing magneto service through exchanges at Port Matilda and Warriors Mark.

The borrower has recently constructed new buildings at both exchanges. The Warriors Mark buildings will also house commercial office facilities. The company plans to install new automatic facilities in both structures.

A portion of the loan will cover refinancing of the borrower's existing indebtedness incurred by rehabilitating outside plant and constructing the two new buildings.

Hugh L. Wilson is president and C. E. Houck is manager of the Huntingdon & Centre County Telephone Co.

•

Smithville Telephone Co., Ellettsville, Ind., 1.7 million dollars; May 28.

These funds will be used by the borrower to improve service for 1,600 existing subscribers, and to furnish initial service for 1,891 rural families. The present subscribers are now receiving magneto service from the following companies: Goldsmith Cooperative Telephone Co.; Greene County Telephone Co. of Lyons; Griffin Telephone Co., Hymera Telephone Co.; Lizton Telephone Co.; and Sharpsville Telephone Co. The borrower plans to acquire, rehabilitate, and expand these facilities.

New automatic central offices are scheduled for construction at Griffin, Hymera, Lizton, Lyons, and Sharpsville. Of the 1,891 subscribers who will receive initial service as a result of this loan, 853 are in the borrower's present Ellettsville and French Lick exchanges. Funds are also included in this loan for a new automatic office building in French Lick.

REA loans to the Smithville Telephone Co. amount to $2,965,000 which will enable it to provide new and improved service to 8,286 subscribers. The completed system will consist of 10 automatic offices. Four of these are in operation at present.

Byron A. Draper is both president and manager of the Smithville Co.

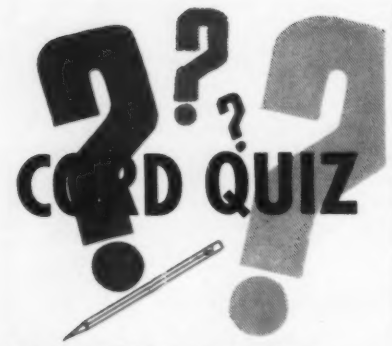
•

Farmers Mutual Telephone Co., Bellingham, Minn., $274,000; May 29.

These funds will enable the company to improve service for 304 rural subscribers and to furnish initial service for 88 farm families. As a nucleus for the added service, the borrower intends to acquire and integrate the Marietta Telephone Co., which is now furnishing magneto service to the existing subscribers. A new automatic central office building will replace the magneto switchboard at Marietta.

REA loans to this borrower amount to $741,000 which will enable it to provide new and improved service to 1,145 rural subscribers. Two of the three exchanges of the system, Cerro Gordo and Bellingham are now providing dial service to about 600 rural families.

Selmer Torstenson is president of the Farmers Mutual Telephone Co. and William A. Preble is manager.



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✓ Do they provide noise-free conductivity?
✓ Will they prove to be economical by providing long, trouble-free service life?
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myriad of other considerations can be fed to mobile field computers for sifting and immediate display, enabling commanders to make the rapid decisions essential to success.

Scientific achievement, including the ability to stay one step ahead of any potential enemy, has become the essential ingredient in any war, hot or cold. As essential to science as science is to war is the art of electronics. Any future combat into which this nation might be forced would probably be nuclear. But the use of large yield nuclear weapons may be limited by mutual fear, economic limitations, or unwritten agreements. Nuclear or not, hot or cold, modern warfare must be electronic.

The greater part of the Army Signal Corp's Research and Development funds are allocated to the Fort Monmouth Laboratory, with 3,500 employes. However, the U. S. Army Electronic Proving Grounds at Ft. Huachuca, Ariz., the White Sands Signal Corps Agency in New Mexico, and other installations, also participate.

All of this development work is not accomplished internally. The Research and Development progress of the Army Signal Corps, the constant battle to keep ahead of galloping obsolesence, could only be achieved through the widest possible cooperation with industry and other research organizations. Every year some 800 contracts for outside or joint research and development are let by the laboratories to industrial concerns, colleges and universities, and other organizations. It must also be emphasized that because of this close liaison between Army Signal Corps Research and Development activities and civilian industry, the benefits of significant scientific break-throughs are immediately passed on to augment America's over-all industrial capacity.

Since there is practically no field of science today that is not dependent on electronics, there is little science that does not benefit by Army Signal Corps scientific advancement. These recent communication advances, in addition to playing a vital part in long-range military superiority, have also provided numerous civilian benefits. They have made possible better home and portable radio sets, improved batteries and tubes, more reliable TV sets, and, in general, have boosted the quality of practically all commercial electronic devices.

The rapid advancement of science in this progressive age will not, however, permit the Army Signal Corps to rest on its laurels. Both military and civilian personnel are presently exerting every effort to solve the many immediate problems with which they are confronted. It is only through this constant effort that the Army Signal Corps can do its part in maintaining our nation's security.

IN THE NATION'S CAPITAL

Continued from page 18

TV antenna systems is probably somewhere between a million and a half people.

Elsewhere, small isolated communities manage to obtain television service by the use of TV repeaters, whose function essentially is the off-the-air pickup of incoming television signals at a favorable reception point and the amplification and retransmission of those signals by radio to the community. At first, retransmission was typically performed on the same frequency as the incoming signal.

Today, owing to difficulties encountered with ghosting interference, the signals are more usually converted to and retransmitted on a different frequency. Although accurate information is not available, it is reported that there are approximately 1,000 such facilities in operation. The operation of such devices has not been authorized by the FCC and is, therefore, probably conducted in violation of the requirement of the Federal Communications Act that all users of radio frequencies be licensed by the FCC.

Four years ago the FCC, in an effort to assist the TV viewers in small towns and the wide-open spaces, adopted a policy of encouraging the establishment of strictly local transmission stations or what are called "satellite" stations. These stations are permitted to operate for the purpose of rebroadcasting the programs carried by other TV stations. They are licensed as regular TV stations and may even originate local programs, although most of them do not do so.

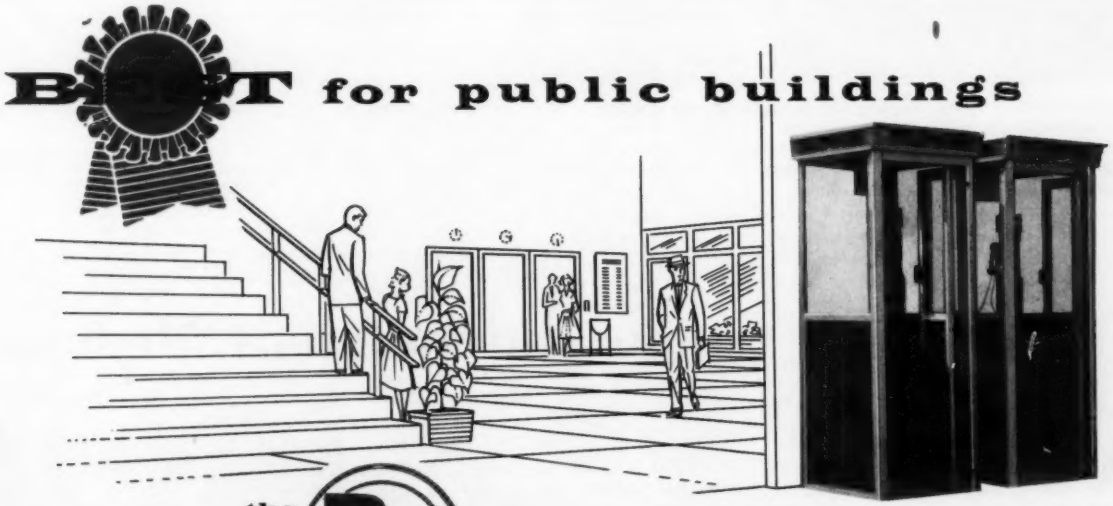
A policy statement regarding so-called "satellite" stations did result in the construction of several such stations in medium-sized markets but fell short of solving the problem of TV reception in the small, remote communities. So then the FCC, with the cooperation of the television industry, made a comprehensive study of various methods of bringing TV reception to small communities at low cost and after careful consideration of all available data, promulgated rules to provide for the licensing of television broadcast "translator" stations.

The "translator" stations are permitted to receive the signals of television broadcast stations operating on any very high frequency or ultra-high frequency channel, convert or "translate" the signals to a channel in the upper ultra-high frequency television broadcast band, and retransmit them with a maximum transmitter power output of 10 watts. Approximately 125 television translators are in operation and applications continue to come in. It is estimated that between a quarter and a half million people are within receiving range of existing TV translators.

But, the FCC is still troubled by complaints and abuses caused by interference and unauthorized operation. None of the thousand "repeaters" reported to be in operation have been authorized by the FCC. The FCC has, so far, declined to make such authorization because of the interference problem. It now has pending a rule which would legalize such stations under proper safeguards against interference.

There are a host of economic problems, as well, which the FCC is determined to consider, such as the effect of these supplementary television services on the market, which would normally be assigned to local TV stations which are now occupied by national programs being picked up and being relayed into the local areas.

And, so, the FCC has announced its series of 14 questions. Specifically, for the Independent telephone companies, the United States Independent Telephone Association has sent its own questionnaire of four simplified questions in which a telephone company can advise the national association to what extent these television reception complications are present in their respective service areas.



B-T for public buildings

the BN Booth

attracts revenue with its colorful, clean appearance ... retains profits with sturdy maintenance-free construction.

The BN Booth is best for you, too!

For full particulars, consult your distributor or write direct for folder... Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.

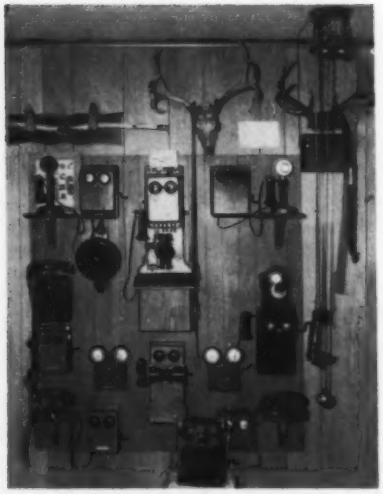
a B-N booth is a busy booth!

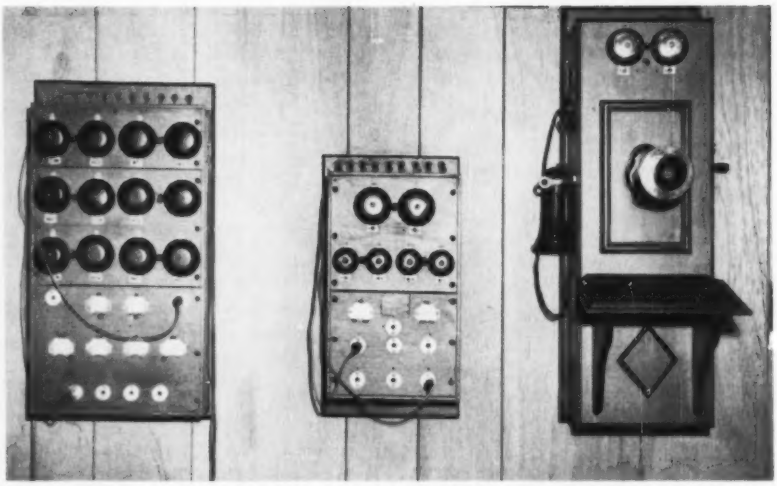
We Goofed!

Pictured to the left is the Murphy Buzzer Relay Set (model BR-1) that *should* have been illustrated in the top portion of our ad (page 155) in Telephony's Directory. Somehow we got the picture of the Buzzer Relay Set mixed up with the Murphy One Man *Working* Cable Tester, an instrument now being field tested and not even on the market. However, in spite of this lapse you can still look to Murphy for the finest in telephone testing equipment.

Murphy Engineering Laboratories, Inc.

4419 Tulsa Houston 24, Texas





LEFT PHOTO: Some of the old instruments on display in the Jefferson museum. RIGHT PHOTO: Two switchboards and a telephone made by the Amana Society at Amana, Ia., dating back prior to 1900. The cabinets are of native walnut lumber and apparently all of the parts are homemade by the society. Note that the jacks and plugs are one-conductor affairs and were used to "bridge through" telephone connections from one part of the society to the other, probably through three or four such boards.

Daubendiek Opens Independent Museum

A MUSEUM to house old telephones and associated telephone equipment of Independent manufacture has been established in the new central office building of the Jefferson (Ia.) Telephone Co. by C. H. Daubendiek, secretary-manager of the company. (See accompanying photographs).

An old telephone with wild cherry cabinet. Working parts are nickel-plated and installed behind the plate glass. It was in use in Iowa for a number of years.

The museum presently houses instruments and equipment which have been presented to Mr. Daubendiek over the years and which he has personally salvaged from exchanges in Iowa.

Mr. Daubendiek states that the Jefferson company has sufficient quarters to enlarge the present museum to house additional equipment or telephones which Independent companies may want to send to Jefferson. He states that he hopes to enlarge the display and make the Jefferson museum a focal point where the public and historians may view the progress made in telephone equipment over the years.

"As for myself and two of my sons, who are associated with the Jefferson company, I can offer safe haven for any piece of telephone equipment of an antique nature that might find its way to our museum. We invite any Independent company to send any unusual pieces, especially those dating back to the 1890's," Mr. Daubendiek said.

He further stated that any equipment or telephones sent to the museum will be properly labeled and acknowledged.

The upper third of this photo shows automatic cut-off equipment for manually-operated, common-battery farm lines, designed by Gene R. Daubendiek. The center portion pictures a replica of the first switchboard designed for the New Haven (Conn.) Telephone Co. in 1878. At the bottom is the first Sub-Cycle built in the United States by the Lorain Products Co. for the Jefferson Telephone Co., which was the "guinea pig" in proving in this equipment.

TELEPHONY'S Traffic Engineering Handbook

By Gilbert R. Brackett

June 14, 1958

Section 18 (Continued)

Managing Your Service

The broad principles of a pleasing service apply to all services. In cities equipped with dial service, the vast majority of calls are completed without using the services of an operator. The few calls that reach the DSA are usually due to some difficulty the customer has encountered. Here is a rare opportunity to apply the principles of pleasing service. The operator by intelligent, tactful questioning can quickly determine what is wrong. Her helpful manner in initiating prompt corrective action will promote sincere public approval.

Many opportunities to uphold the tone of service emanate from the handling of toll calls. While some toll calls are of such simple nature they require little conversation between operator and customer, others may demand the ultimate in initiative and judgment.

When an operator shows alertness in recognizing an out-of-the-ordinary condition and responds to the service demands of the situation, she wins a friend for herself and the company. Many person-to-person connections, calls encountering delays, AG (try again) requests, WH (we have, or ready with line or party) reports, and calls with meager call details offer timely occasions for tone-of-service improvement.

In cities where Direct Distance Dialing (DDD) operation is installed, the customer will usually dial most of his station-to-station calls and so reduce the number of customer-operator contacts. Then if more alertness is shown and the call is adeptly handled, when operator assistance is needed the operator will be well along the way toward public acceptance of the service.

Requests received for calls to points which the customer can dial offer rare opportunities to encourage him to dial such calls himself in the future. Requests for credit, distant telephone numbers, direct distance dialing instructions and other assistance calls can be pleasing contacts when cared for in an efficient, courteous manner.

Often the customer reaches a supervisor because of a difficulty. When the supervisor permits the customer to give details without interruption, uses non-technical terms in her conversation, accepts the responsibility for the service failure and doesn't blame others but offers a careful explanation of how she will care for the customer's needs, that person will feel he is receiving exemplary service.

Attended public telephones offer a rich opportunity for personal service. Here a person deals direct with the customer, face-to-face, and is not dependent upon voice to convey interest and friendliness. Personal contact permits easier identification of calls requiring unusual treatment and adept handling.

The best results are obtained when definite and specific plans for personalized service are made an important part of all central office activities. Infrequent campaigns cannot take the place of attention to tone of service when training an operator. The goal should be to bring out the best in each employe without distracting from her inherent qualities of naturalness and eagerness to be of help.

While interest is a fundamental requisite, merely to have the desire is not enough. A person must also have the capabilities of recognizing a chance to make the service more pleasing. She must be the judge of the action that should be taken to adequately meet the customer's needs.

In the selection of new employes, it is important to realize that along with other essential qualifications, a pleasing and clear tone of voice, a friendly and courteous manner, an expressive bearing, assurance, alertness and animation are attributes much sought after in recruiting a force of operators. The operators so chosen will promote a pleasing service simply because they like to do so.

To provide customers with a satisfying service, it is imperative that the force should be informed about the business, its policies, traditions and aims. The better an employe knows his company, the better he will be able to present intelligent answers to questions.

Further, he will feel he is part of the company and that the company is relying upon his judgment to represent it well to those whom he contacts. When an operator knows how her own job fits into and is made a part of the over-all undertaking of furnishing telephone service, she will put her every effort into fulfilling her job requirements for good service.

Once our employes become tone-of-service conscious, service criticisms, service tickets, customer service surveys and other criteria developed to test the public pulse of good will can't help but show a remarkable improvement. It might be well for all telephone people to adopt a slogan, "The call we save may change a critic into a booster!"

(To be continued next week)

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

ABOVE Alaska's jagged peaks, in the emptiness that once belonged to the wind, the aimless bird and the rushing airplane, electronic streams of messages are flashing precisely from place to place. The bearer of these messages is White Alice, the new long distance telephone and telegraph network serving the greater part of the interior of the Territory. White Alice is bringing reliable communication to some areas of the north country where it has been at best, precarious, and at worst, nonexistent.

White Alice is a strange name for a communications system. The words alone signify nothing more than a code designation for the project—picked because they were an available combination.

In meaning, however, White Alice has come to symbolize a struggle against the harsh north, and a new triumph of science. It represents the first large-scale application of a new communications technique. It is the biggest network of its type yet built, and the first to provide commercial service. It has established high grade telephone facilities where they could never before exist.

Constructed for the Air Force to give essential communication with its bases throughout Alaska, and to provide a link with the remote Distant Early Warning (DEW) Line radar stations beyond the Arctic Circle, White Alice also serves the Army, the Navy, the Civil Aeronautics Authority, and other government agencies as well as the citizens of the territory—for it was designed and constructed with all these needs in mind. Circuits in the White Alice network are made available to the public through the Alaska communication system which has the responsibility for providing civilian long distance communications in Alaska.

It has taken three years—and some 3,500 people—to build White Alice. Work started in 1955. The first link was completed the following year, and the first call transmitted over it on Nov. 29, 1956.

White Alice is a radio relay communications system. There are 33 stations, where the telephone and telegraph signals are amplified and sent on to the next point. Most of the stations are manned.

The network and its stations have been tailored to Alaska, for White Alice has to span vast uninhabited distances. It has to work when arctic storms batter the installations. It has to conquer atmospheric interference, as well as distance and weather.

White Alice was born in May 1954 when the Air Force asked the American Telephone & Telegraph Co. to study the Alaska communications problem. Stated simply, this problem was to provide adequate military and public telephone and telegraph facilities of the best quality through regions where they could never before be built.

It looked like a forbidding task. Considering the wild terrain, the fierce weather and the atmospheric difficulties, the problem under study ranked with the most challenging communications projects ever considered.

As the survey progressed, it appeared that a new form of radio, barely out of the laboratory, could do the job. The recommendation was made, and with it the decision.

Early in 1955, the air material command signed a contract with the Western Electric Co. to build the White Alice network. For Western Electric, no stranger to hard assignments in remote places, it meant assembling a team of experts in a score of different specialties. Western drew liberally on its own resources and those of the other companies of the Bell telephone system.

Locating the terminals and laying out the routes was the first step—and a rugged one it was for the men who did the job. Field survey teams explored the areas selected, working with the best maps available. Even then they found some mountains 10 miles from their mapped locations and as much as 1,000 feet too low. In one instance, a team considered 48 sites before finding a suitable one.

Finding the sites was only the first part of the job. Path testing came next—the testing of a proposed route for transmission characteristics. If the route proved to be a poor one for transmission, the site of a relay station had to be moved until a good path was found, and transmission met the objectives.

Men and machines from all over the continent arrived in Alaska for the next chapter—construction. The airplane, which has been called the covered wagon of the arctic, became the work horse of White Alice. Air Force planes manned by seasoned crews, chartered "bush" planes, helicopters and airliners delivered materials to remote wilderness spots. Often, the air route was the only way to get there. Many air strips had to be built.

To provide enough room for some of the lofty sites, the tops of mountains were leveled. Finally, the antennas rose in the air and the delicate electronic equipment was installed in the stations by telephone men who came to Alaska from the Bell companies.

Hundreds of American firms—Western Electric, the prime contractor; Morrison Knudsen, the chief construction firm; as well as the smallest supplier—did their jobs on tight schedules. The Army's Corps of engineers built 10 of the stations. The Air Force, with planes and 'copters, performed remarkable feats. And in building White Alice, remarkable feats were common events. For those who built it, White Alice was a challenge and triumph.

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It is claimed that the test of good manners is to put up pleasantly with bad ones.

Courts and Commissions

Fla. Commission Enjoined On Interim Rate Order

The Florida Railroad & Public Utilities Commission on May 30 was enjoined by Circuit Judge Hugh Taylor from calling off a temporary rate increase it had ordered on May 9 for Southeastern Telephone Co., Tallahassee (TELEPHONY, May 24, p. 38).

The court said its order would remain in effect until June 16, when it will hold a hearing on Southeastern's petition for a permanent injunction.

The company went to court to contest the commission's surprise action of May 29 in reversing its May 9 rate raise order. The commission voted 2-to-1 to call off the increase until after a July 22 hearing on service rendered by the company.

Southeastern told the court its June 1 bills had been made out at the increased rate and were ready for mailing and rescinding the rate increase would cause the company irreparable damage. The city of Tallahassee and other municipalities had asked for reversal of the rate increase.

At the time it granted the interim rate increase, the commission said that a necessary separations study would require about six months and that this lapse of time would seriously "jeopardize its (the company's) financial position and seriously contribute to a deterioration of its credit and its ability to render a satisfactory service to the public."

Continuing, the commission said then that the company's motion and affidavit show that its current earnings are at a rate less than 4 per cent of its investment with some indication of a downward trend continuing. The company's construction budgets for 1958 and 1959 are more than 6 million dollars and 5 million dollars of this amount must come from the sale of securities. Southeastern also asserted, according to the commission, that its present earnings will not support such a financial undertaking and that the public service will suffer if the company cannot attract needed capital.

The commission then went on to state:

"It is obvious to the commission that some increase will probably be necessary but the extent of the same, of course, cannot be determined until a full public hearing has been held by the commission on the application. . . .

"It is axiomatic, of course, that the public itself must suffer in the long run if its utilities are unable to secure necessary funds for expansion and improvement. Therefore, the public interest itself requires that public utilities must be kept in a sound financial condition, otherwise the public's demand for more and better service cannot be met."

Since it will take several months for a record to be made upon which the commission can base a final order, the commission said it felt that the company should be allowed to put the proposed schedule of rates and charges in effect immediately under bond.

The commission said it was its view that "the burden of preserving the financial stability of the applicant during the period necessary for adjusting its rates and charges should, in this manner, be borne by both the public and the utility inasmuch as they are both vitally interested in the continued expansion and improvement of telephone service and facilities in the affected area."

In its order of May 29, reversing its approval of the interim rate raise, the commission stated:

"Temporary rates under bond appeared to be the best way to insure expanded and improved service within a reasonable time.

"The commission apparently misconstrued the purpose and intent of the cities' (Tallahassee *et al.*) original request. What appeared to be primarily a concern over the quality of telephone service being rendered now appears to be an even greater concern over the level of the rates to be paid for telephone service.

"The procedure followed by the commission, in all probability, would have led to a more expeditious improvement in telephone service within Southeastern's service area, but it did not afford the public an opportunity to be heard on the level of the rates.

"When the cities' request is construed as a protest against the rates themselves, then such cities should have an opportunity to be heard even though the increased rates were for a temporary period and under bond.

"In misconstruing the request, the commission deprived the cities of their right to be heard. That should now be corrected by vacating (the interim rate increase order)."

The commission added that by vacating the interim rate order, Southeastern's motion for temporary rates under bond remains pending further disposition by the commission.

In an effort to avoid extended litigation which would ultimately be paid for by the public through taxes and utility rates, the commission will, as expeditiously as possible, arrange a pre-hearing conference for the purpose of simplifying the issues and determining the procedures to be followed in this and the investigation docket.

In the meantime, Southeastern Telephone Co. was ordered by the commission to refund immediately all increases collected under the authority of the interim rate approval.

In another phase of the Southeastern rate case, the commission concluded it could not grant the request of Tallahassee *et al.* for an order requiring the company to show cause why its service should not be improved before a hearing is held on its application for increased rates. The commission based its decision in this matter on the case of *Florida Telephone Corp. v. Carter, et al.* (70 So 2d 508).

OK General of SW Stock Sale In Arkansas

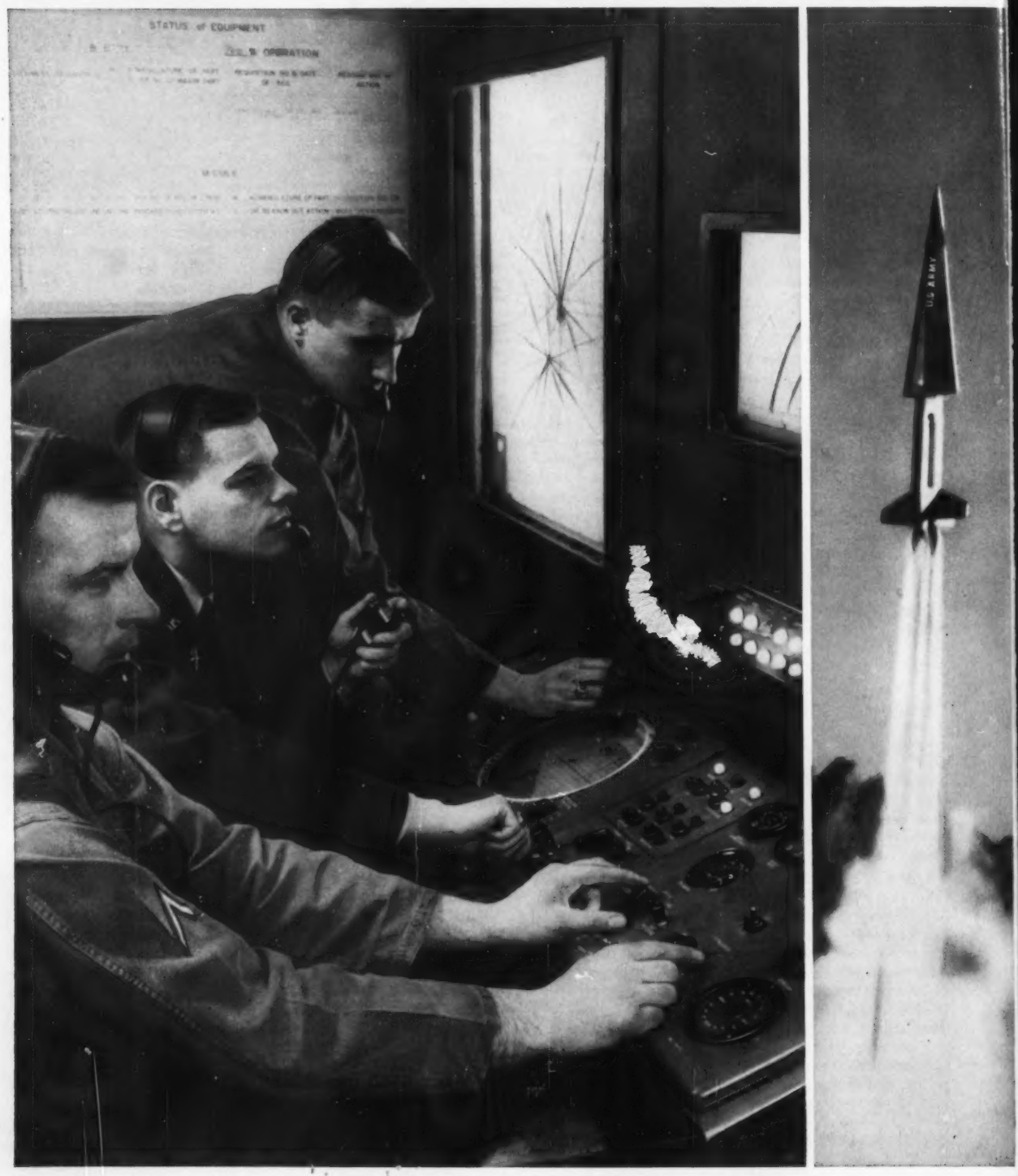
The Arkansas Public Service Commission on May 8 granted the General Telephone Co. of the Southwest, San Angelo, Tex. authority to sell 2.5 million dollars of common stock.

This money will be used for construction and refinancing. The company plans to use $300,000 of the issue to improve services at its Augusta, Prescott, and Texarkana exchanges in Ark.

Four Exchanges In Kansas Sold To Two Independents

The Kansas Corporation Commission on May 28 authorized the Udall Telephone Co. to take over two exchanges. The Udall company will now operate

(Please turn to page 44)



U. S. ARMY. Blast off—and a Nike Hercules streaks skyward. Inside a battery control van the Army crew scans radar scopes, as the Western Electric-made guidance and control system directs the Nike missile to its target.

THE U.S. ARMY'S NIKE

Designed to counter today's threat from the air, the Nike guided missile system has been operational — actually on duty — now for more than four years . . . able to seek out and destroy the most advanced types of enemy aircraft. From the beginning, the Army's prime contractor for Nike systems has been Western Electric — maker of your Bell telephone.

The Nike guided missile system recently welcomed a powerful new partner — Nike Hercules, a major improvement over the original Nike Ajax.

Hercules is faster, boasts greater range and altitude, and carries a bigger payload than the first Nike. When fitted with an atomic warhead, Hercules can destroy entire formations of supersonic enemy planes. The Army's Nike battalions across the country are presently being equipped with this improved missile system.

The ground guidance and control equipment for Nike Hercules, along with the guidance assembly in the missile, is made by Western Electric at our three plants in North Carolina. The Nike missile itself and the launching equipment are produced by Douglas Aircraft, and the development of the complete system was engineered by our teammates at Bell Laboratories. Western Electric field engineers help set up the missile batteries and train Army Nike men.

We at Western Electric were asked to take on the Nike assignment because of our store of specialized experience in communications. Through our constant teamwork with the Bell Laboratories we have learned to blend research with production, so that ideas become working realities quickly . . . efficiently. It is this kind of experience and know-how that have helped make possible the deadly new Nike Hercules — and give promise of even more effective Nike guided missiles yet to come.

In addition to the Nike guided missile system, Western Electric defense projects include the recently completed DEW Line of radar stations, the White Alice Alaskan communications system, SAGE, and the manufacture of other military electronic equipment. These and other projects — on which Western Electric is prime contractor — are an important part of our contribution to the nation's security.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

WESTERN ELECTRIC. Our factories in Winston-Salem, Greensboro and Burlington, N. C., make guidance and control equipment for the Nike systems, as well as other electronic products for military use.

BELL LABORATORIES. The Nike system was designed and developed by Bell Telephone Laboratories. Their continued research will play an important part in the even better Nikes of the future.

DOUGLAS AIRCRAFT. Nike missiles, equipped with Western Electric guidance mechanisms, are made for W. E. by Douglas Aircraft. Douglas has worked closely with us since the Nike project began.

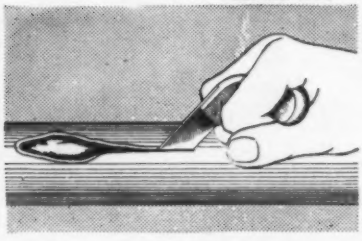
NEW KLEIN

stripping tool

for all types of control cable

Patents 2398979
2691822

Cat. No. 1558



Here is a new tool developed by Klein, designed to strip insulation from all types of control cable, flexible cords, PWC, telephone cable with vinyl or polyethylene jackets and bus drop.

Handle of cast aluminum, light in weight and with convenient grip; knife of tempered tool steel may be sharpened and is easily removed for replacement. This tool strips insulation from a few inches to as many feet as desired swiftly and simply. Does not damage conductors inside weatherproof sheath.

Write for bulletin giving complete information.

FREE POCKET TOOL GUIDE

100 years of service to linemen, electricians and industry is back of this new Pocket Tool Guide No. 100. A copy will be sent you on request without obligation.

ASK YOUR SUPPLIER

Foreign Distributor:
International Standard
Electric Corp.
New York

Mathias KLEIN & Sons
Established 1857 Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

the Rock exchange, formerly owned by the Rock Rural Telephone Co. and the Potwin exchange which had been operated by the Potwin Mutual Telephone Co.

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In other property transfers, the Reno Telephone Co., Hutchinson, was authorized by the Kansas Corporation Commission on May 7 to take over exchanges at Americus and Durham.

The American exchange was acquired from the Americus Telephone Co. and the Durham exchange from the United Telephone Co. of Kansas, Abilene.

Plastic Directory Covers Outlawed by N. Y. Court

In a recent ruling the New York Supreme Court upheld the New York Public Service Commission's decision definitely ruling against the use and circulation of plastic directory covers which are not furnished by the telephone company (TELEPHONY, July 20, p. 36). To qualify for protection under this ruling, the company must have a proper filing with the commission prohibiting the use of such covers.

The provision as finally approved by the commission, reads:

"Telephone directories distributed from time to time by the telephone company remain the property of the telephone company, shall not be mutilated, and shall be surrendered upon request or upon delivery of the subsequent issue.

No binder, holder, insert, auxiliary cover or attachment of any kind not furnished by the telephone company shall be attached to or used with the directories owned by the telephone company, except that this prohibition shall not apply to a subscriber—provided binder, holder, insert or auxiliary cover, which contains no advertising, and which is not so attached as to impede reference to essential service information or otherwise interfere with service."

The determination of the New York Public Service Commission followed a hearing concerning provisions affecting directory covers contained in tariffs of Cazenovia Telephone Corp. and Seneca-Gorham Telephone Corp. The appeal from this decision to the New York Supreme Court was made by the National Merchandising Corp.

National Merchandising is a Massachusetts corporation engaged in selling and distributing advertising and when this action was brought was concerned in particular with the production and distribution of covers for telephone directories.

Although there are some variations, in general the covers are made of transparent plastic material with sleeves into which the front and back card covers of a telephone directory may be inserted. Hinged to the front of the plastic cover is an opaque colored plastic sheet which contains the names, businesses, addresses and telephone numbers of advertisers, and the telephone numbers of police, fire and other services.

Other printed matter appears on the reverse side of the sheets. The National Merchandising Corp. sold the cover and the advertising to selected advertisers and the covers were distributed free to telephone subscribers served by the particular directory involved.

While the briefs presented many arguments, the real issue in question was the power and jurisdiction of the New York Public Service Commission to make the determination, or to enter the field of directory advertising at all, and, if it has such power, whether the regulation is a reasonable exercise thereof.

Simply put, National Merchandising Corp. claimed that the commission is regulating the advertising business over which it has no jurisdiction. The commission contended that the practice involved here and potentially practiced by others in various forms and by various methods, is so intimately related to telephone service to the public and to telephone rates charged to subscribers that the general regulatory powers of the commission may be invoked.

The supreme court decision stated that Article 5 of the Public Service Law, and particularly sections 91, 92, 94 and 97 thereof, give the commission broad powers of regulation over telephone companies. The telephone directory remains at all times the property of the telephone company and is essential in facilitating the business of affording telephonic communication.

The court noted that it appears that the numbers of subscribers and emergency services are frequently changed and that new directories are published periodically. The commission finds that potentially incorrect numbers could be used in advertising attached to the telephone company's directory, resulting in confusion and detriment to the service rendered to subscribers generally — particularly harmful should the erroneous number be one of the emergency services.

It is pointed out there can be no positive assurance that advertising containing telephone numbers and designed and intended to be attached to the directories, will be changed simultaneously with the issuance of a new directory, if indeed ever, the court said, and continued:

MAXIMUM EFFICIENCY AT MINIMUM INITIAL COST . . .

USE REX RURAL DISTRIBUTION WIRE

For original and replacement installations

- R.E.A. Listed
- Available in either #19 or 22 AWG with 3, 6, 11 or 16 pairs
- Completely color coded
- Cabled around high strength, galvanized steel, polyethylene insulated support wire
- Conductors insulated with high molecular weight polyethylene and jacketed with weather resistant vinyl for extra abrasion resistance
- Pairs twisted with varying lays to eliminate cross talk.

CUT POLE LINE COSTS WITH REX ONE PAIR

(Type C Distribution Wire)

- For span lengths up to 600 ft.
- Parallel conductors are encompassed in high molecular weight, weather resistant polyethylene
- Raised ridge tracer provides polarity identification
- Easily installed
- High electrical characteristics
- Available in #14 or #12 AWG copperweld or .083 steel

INDEPENDENT

SEND FOR COMPLETE TECHNICAL DATA AND SPECIFICATIONS.

REX WIRE & CABLE

Manufactured by

THE REX CORPORATION

100 HAYWARD ROAD, WEST ACTON, MASS.

Wire-Saving Snubbing Action . . . with this

KEARNEY

SNUB-R-GRIP DROP WIRE GRIP

On poles or buildings this free-swinging drop wire tie provides a "snubbing" action stronger than the rated strength of the wire. This is possible because the unique spiral grip distributes the pull over a long length of wire. KEARNEY Snub-R-Grips are quickly installed and easily salvaged. Just wrap the wire (twisted pair, parallel or synthetic-jacketed) into the grooved spiral. A portion of the groove's inner surface is specially coated to give maximum non-slip grip . . . without damage to insulation.

For Better Construction . . . Safer Maintenance

Specify 288

KEARNEY PRODUCTS

4224-42 Clayton Ave. • St. Louis 10, Mo.
Canadian Plant: Guelph, Ontario

"While such a basis for assuming regulatory supervision over attachments to directories is not unreasonable, the jurisdiction of the commission need not depend upon it. The impact upon rates to subscribers is the most important factor. It is axiomatic that any loss of revenue from other sources by a telephone company must be reflected, at least in some degree, in the rates charged to subscribers.

It appears from the record that telephone companies derive substantial revenue from their own advertising in telephone directories, particularly from the advertising in the so-called "yellow pages." In the case of small telephone companies the advertising revenue frequently covers the entire cost of the publication of the directory, and sometimes nets a profit in addition.

"There is evidence that advertisers in the 'yellow pages' discontinued their advertising therein upon purchasing advertising with an outside concern to be attached to the telephone company's directory. Even without such evidence, it is a fair inference that an advertiser who has advertising attached to the very front of a directory is not likely to pay for advertising on the yellow pages in the back."

The supreme court also stated, "the commission has heretofore entertained jurisdiction over ordinary listings in telephone directories. *(Matter of Certain Subscribers* vs. *New York Telephone Co.* (1937) 1 P.S.C. 676, 20 P.U.R. (N.S.) 223).

"This court has recognized that directory advertising is, at least to some extent, subject to the jurisdiction of the public service commission. *(Matter of Solomon* vs. *Public Service Commission,* 286 App. Div. 636).

"In that case we said: 'While the advertising revenues are properly treated as a part of the telephone company's utility revenues *(District of Columbia* vs. *Chesapeake & Potomac Tel. Co.,* 179 F.2d 814), the commission's primary concern in this connection is to see to it that the telephone company obtains the maximum revenue which it can reasonably obtain from its advertising operations so that the amount of revenue to be obtained from subscribers for telephone service may be reduced as much as possible.' And, 'The public service commission's interest in advertising revenues is thus seen to be a limited one, directed principally to the effect which such revenues may have upon the remaining revenue needs of the company and, correspondingly, upon the rates to be fixed for telephone service.' (p. 640)."

The court observed that National Merchandising relied heavily upon *New England Telephone & Telegraph Co.* vs. *National Merchandising Corp.,* (Mass., 141 N.E. 2nd 702). (TELEPHONY, Apr. 20, 1957, p. 31). That case involved a civil action for an injunction between two private parties, and merely held that there was an inadequate showing to entitle plaintiff to an injunction, the court said. The rights of the public and matters of public concern by a regulating body were not involved.

Therefore, the court concluded, "We are constrained to hold that the public service commission had jurisdiction to act herein, and that upon this record the determination was a reasonable one."

Improve Service Along With Raise, N. C. Company Told

United Telephone Co. of the Carolinas, Southern Pines, was authorized by the North Carolina Utilities Commission on June 4 to increase its rates but was ordered to begin immediately to improve its services (TELEPHONY, May 10, p. 44).

The company asked for rate increases which would up its annual gross revenue by more than $221,620, but the commission cut the increases to an estimated $104,000 a year.

The commission's order said the company was "receiving less than what we consider to be a fair rate of return on the fair value of its properties . . . and it is therefore entitled to an adjustment thereof, but not to the extent requested.

"We further find that the service being rendered by the petitioner fails to meet the test of adequate and efficient telephone service in certain instances," the commission said, in ordering the firm to "submit to this commission a report of progress being made in its improvement in service and elimination of service complaints . . . at the end of each 30 days."

In asking for the rate increase, United cited increased costs and declining earnings, but at a hearing before the commission on May 6 some of United's customers complained against what they termed inadequate service.

The company serves approximately 13,500 subscribers. It received its last rate increase in December 1951 but this was cancelled in April 1955 when the commission ordered it to reduce its rates and charges by the amount of the increase—$50,000.

In its order, the commission said that the $104,000 increase would give the company a rate of return of 6 per cent and would increase its net operating income by $44,000 a year. The $221,620 asked for, the commission said, would have given the company a return of 7.94 per cent. The new rates are effective immediately.

In the order granting the increases,

the commission said evidence in the case "tended to show that service . . . was inadequate," particularly in Fuquay-Varina, Angier, Pittsboro, Gibsonville, Goldston and Kernersville. It noted that "the allegations were not denied" and said that the company "should immediately set about to improve its services." Following are the approved rates at the various exchanges:

Bonlee, Goldston, Robbins and Vass: business service—$6.25 for one-party; $5.25, two-party, and $4.25 for multi-party. Residence—$3.75 for one-party; $3.00, two-party, and $2.50, multi-party.

Pittsboro and Carthage: business—$6.50, one-party; $5.75, two-party, and $4.50, multi-party. Residence—$4.00, one-party; $3.25, two-party, and $2.50, multi-party.

Angier, Fuquay-Varina, Siler City and Kernersville: business—$7.25, one-party; $6.25, two-party, and $4.75, multi-party. Residence — $4.35, one-party; $3.45, two-party, and $2.65, multi-party.

Pinehurst and Southern Pines: business—$10.75 for one-party; $8.50, two-party, and $7.00, multi-party. Residence —$5.50, one-party; $4.50, two-party, and $3.60, multi-party.

Gibsonville: business — $10.75, one-party; $8.50, two-party, and $6.25, multi-party. Residence — $5.25, one-party; $4.25, two-party, $3.50, multi-party.

Ordered to Decide on Answering Service Device

The Wisconsin Telephone Co. and Telesignal Systems of Madison were ordered on May 15 by the Wisconsin Public Service Commission to decide within six months on a standard device for telephone answering services.

The commission also ordered Wisconsin Telephone to file rates and adopt service rules governing the use of the equipment.

The Telesignal Systems company, operated by William Curtin, Madison, filed a complaint with the commission in January, 1957, charging the telephone company with discriminating against a device he invented which was in competition with one furnished by Wisconsin Telephone. Mr. Curtin operates a telephone answering company in Madison.

The equipment seeks out unanswered telephones at lines of customers, permitting an operator to answer the telephone.

Authorize Rate Relief for Two Ohio Independents

The Ohio Public Utilities Commission on May 29 approved rate increases for two Independents — Western Reserve Telephone Co., Hudson, and the Continental Telephone Co.

Western Reserve gained an increase

World's Greatest Economy in Light Hauling!

Cushman 780 TRUCKSTER.

Are you plagued by the unhappy choice between the loss of time suffered by local servicemen on foot, and the expense of putting them in conventional vehicles?

The answer is the 780 Truckster, which already is being used in the telephone industry, at an amazingly low cost figure, for such jobs as servicing teletype installations and outside telephone booths.

Ruggedly built and driven by the powerful Cushman Husky 4-cycle engine, the 780 Truckster handles an 800 pound payload with ease —which means it can also be used for hauling supplies. It not only operates at a cost of less than a penny per mile, but requires a minimum of maintenance expense.

Because of its size and maneuverability, it also eliminates the hazards of parking in congested areas.

The 780 Truckster is available with fiber glass cab and side curtains as optional equipment, and in a variety of body styles to fit your specific requirements. Electric starter is also available.

Ask your dealer for a FREE demonstration or write for new booklet

SOLD AND SERVICED NATIONALLY
Replacement parts available immediately

CUSHMAN MOTOR WORKS, INC.
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Please send complete information on 780 Truckster
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ADDRESS_____
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New adapter shank bit

fits either hand brace or power drill

Taper square shank fits hand braces

Cut off taper and use "hex" shank in both power drills and hand braces

Cut your wood bit inventory by 50%

Now you can eliminate the need to stock two types of wood auger bits. Irwin's new Adapter Shank Bit fits both hand braces and power drills.

With hand braces, use the Adapter Shank Bit as it comes. Cut off taper square and the Adapter Shank, with its 6 "hex flats", chucks perfectly in power drills or hand braces, either one. No wobble, no run-out. Clean, efficient cutting action. Reduces inventory and record keeping by 50%. Saves time on the job, too. Call your distributor, or write today for complete information. Sizes 4/16" to 17/16", both solid center and single twist types.

All Irwin Adapter Shank Wood Bits are forged in one piece from special steel and heat tempered full length for longer life. Plastic coating on balanced cutting heads guarantees factory-fresh sharpness, unequalled performance. Widely used by utilities, electricians and construction workers.

IRWIN auger bits • screw drivers

Wilmington, Ohio

of $145,557 annually. The company serves about 10,000 subscribers in 11 exchanges.

The Continental company was permitted to raise rates by $6,352 a year. The company serves about 747 stations.

General of Kentucky Seeks $1,853,000 Raise

General Telephone Co. of Kentucky, Lexington, on June 2 asked the Kentucky Public Service Commission for permission to raise its rates $1,853,000 a year.

Of the total increases sought, $1,640,000 would be in primary exchange rates.

Another $170,000 of the increase would be applied to service connections, PBX's, and other miscellaneous services.

The remaining $42,000 of the increase would be in certain intrastate toll rates.

In its petition, General of Kentucky declared that the number of subscribers had increased from 59,405 on Jan. 1, 1953, to 112,568 on Apr. 30, 1958.

The company has invested about 22 million dollars in additional plant in that period, so that its total investment on Apr. 30 was about 32 million dollars.

Further, the petition said, the company expects to spend another 15 million dollars on expansion during 1958 and 1959.

The increases are needed, the company said, because its cost of labor and its investment cost are continuing to rise.

General of Kentucky now serves 330 communities through 47 exchanges.

Grant Increase To Wis. Company; 2nd Asks Raise

The Dickeyville Telephone Co. on May 9 was authorized by the Wisconsin Public Service Commission to increase its rates $3,868 annually (TELEPHONY, Apr. 5, p. 39). The increase will become effective upon conversion of the Dickeyville exchange to automatic operation about July 1.

•

Also in Wisconsin, the commission set June 12 as the date for hearing the application of the Greenwood Telephone Co. for a rate increase.

Ask Stock OK in N. Y.

The New York Public Service Commission was to hear a petition of the Au Sable Valley Telephone Co., Inc., Keeseville, on June 10 for authority to issue 1,625 shares of no par common stock and 1,600 shares of 5½ per cent $100 par preferred stock.

Montana Telephone Rate Case Appealed to Court

Mountain States Telephone & Telegraph Co. filed a court petition on May 27 in an effort to put into effect rate increases that were denied on May 7 by the Montana Public Service Commission (TELEPHONY, May 24, p. 43). In an action filed in the Lewis and Clark County District Court in Helena, the company requested that the higher rates be authorized pending completion of a court trial on the merits of the rejected rate application.

The commission's order denying rate increases was signed by Paul T. Smith, chairman and Ory J. Armstrong, commissioner with Austin B. Middleton, commissioner, dissenting.

The company estimated the proposed rates would bring a net earnings increase of about $1,484,000 a year.

Two Ask Permission To Sell in Illinois

The Illinois Commerce Commission was scheduled on June 11 to hear an application of the Oconee Telephone Exchange, Inc. to sell and of the Midland Telephone Co. to purchase the Oconee company.

•

The commission on June 12 was also scheduled to hear the application of the Lomax Telephone Co. for permission to sell to the McDonough Telephone Cooperative.

Merge Three General Companies in Ohio

Merger of three subsidiaries of General Telephone Corp.—General Telephone Co. of Ohio, Ohio Consolidated Telephone Co. and Chesapeake Telephone Co.—was approved on May 30 by the Ohio Public Utilities Commission.

The consolidated company will be known as General Telephone Co. of Ohio.

Asks Purchase OK in Pa.

The Pennsylvania Public Utility Commission on June 20 is to hear the request of the Ironton Telephone Co., Lehigh County, to buy the assets, rights and franchises of Ironton Rural Telephone Lines. The Ironton Telephone Co. also seeks to incorporate and issue common stock.

OK Sale in Minnesota

The Minnesota Railroad & Warehouse Commission on May 26 authorized the sale of all telephone property of the Arco Electric Co. (serving 115 stations), to the Tyler Telephone Co.

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ALECTRA *line of*

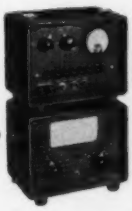
portable test instruments

...with laboratory precision

ALL-TRANSISTOR CIRCUITRY ON PRINTED WIRING

Now, for the first time, you can order modern transistorized test instruments *specifically designed for the telephone industry*. Salient features of Alectra's complete, light-weight line are self-contained battery power-supplies and transistor circuitry on printed wiring. Identical unit size, rubber feet and collapsible leather handles guarantee easy, practical stacking. Also readily adaptable to standard rack mounting, they assure instant stable operation with no warm-up time. *Contact your CEC Field Office, or write today for Bulletin CEC 7000-X15.*

MODEL 11 A, DBM/DBA METER
Designed specifically for the telephone industry. Balanced input—±0.5 db, 300 cps to 10 kc. Self-contained power supply, weighs only 10 lbs. Features flat and F1A-weighted meter scales which are read directly. Extremely stable operation, accurate to ±1 db. Unusual sensitivity permits measurements of less than zero DBA. All-transistor circuitry on printed wiring. Competitively priced.



MODEL 25A
TEST OSCILLATOR (TELECOMMUNICATIONS)
8 preset frequencies (pushbutton)
Balanced output—600 ohms impedance

MODEL 15A
MULTI-RANGE A-C VOLTMETER
Balanced input—30 cps to 300 kc
1 mv to 300 v full-scale

MODEL 21A
TEST OSCILLATOR (PUSHBUTTON)
8 preset frequencies
50 cps to 50 kc
less than 1-ohm output impedance

MODEL 10A
A-C ELECTRONIC VOLTMETER
1mv to 300 v full-scale
5 cps to 500 kc

MODEL 30A
D-C ELECTRONIC VOLTMETER
8 ranges (0.05 to 150 volts d-c)
Scale zero-centered

MODEL 14A. TRUE RMS A-C VOLTMETER
0.5 mv to 200 v full-scale
Response: 10 cps to 500 kc

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AUXILIARY POWER SUPPLY
Provides 12 v d-c (nominal) to power any combination of 1 to 4 **Alectra** instruments
Operates from 115 v, 60-cycle a-c

MODEL 20A
TEST OSCILLATOR
15 cps to 150 kc
less than 1-ohm output impedance

MODEL 40 SERIES
CARRIER FREQUENCY ATTENUATORS
0.2 db accuracy, d-c to 600 kc
1-db steps to 82 db

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FULL FLOATING SHIFTING DEE BODY BELT . . .

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The Bashlin Quality Line of Linemen's Safety Equipment is complete . . . Buy the best from a manufacturer with Long Proven Experience.

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Highest Quality For Over 30 Years
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Ask for . . .
CATALOG NO. 156

W. M. BASHLIN CO.
GROVE CITY, PA.

EFFICIENT OPERATION AND ITS REWARDS

Continued from page 20

the picture — at a company which stresses alert, efficient management. It does not have to be a big telephone company or even a medium-sized company, but may very well be, and often is, a Class C or Class D company.

Good Service Is Key

Among the first facts that bring a good company to our attention is its filing of its reports on time—that is, reports that are properly prepared. Another good sign is the absence of service complaints from its operating territory. The fact that we get a few service complaints on a company does not mean necessarily that its service is not good, but when over an extended period of time we get complaints in considerable number, then it is only natural that we begin to form impressions.

As you know, utility regulation is not an exact science and we are human like everyone else. We are not long in forming favorable impressions of a company, large or small, that shows that it is earnestly trying to do what it is supposed to do, including maintaining good customer relations. As a practical matter, to be very frank about it, this makes our job easier.

It has been my experience that the most bitterly fought rate cases are those in which the public feels that it is not getting good service for its money. But, when the company bears a good reputation with the public, and, therefore, most probably, with the commission, too, the commission, at a time when it is beset by other complex problems, naturally views with great satisfaction the record and standing of this company and has a definite desire to see it do well. It will do all that it can to see to it that it does well, because the company is fulfilling its mission, namely, rendering good service to the public. This attitude on the part of a commission, in my opinion, is not only natural and human but is sound and desirable because it is, I think, the most direct route to over-all good service in the public interest.

I have already referred to the advantage in keeping company records properly and in conformance with the commission's uniform system of accounts. This may or may not require the services of an accountant in the case of a small telephone company, depending upon the know-how of the management of that particular company. But, certainly the practice of keeping proper records is a worthwhile one from any point of view.

I also have referred to the subject of rural line extensions. We all know that a large percentage of the applications for rural telephone service involves the construction of rural line extensions. Most of the smaller companies will build not to exceed an average of one-half mile of pole line per applicant and will not expend for construction more than five times the annual local service revenue to be derived therefrom. All construction costs over and above this allowance are charged to the customer.

It is true that someone must bear these rural line extension costs—either the applicant or the entire body of subscribers or both. Where to draw the line to achieve maximum fairness, under the circumstances, to all concerned is the question and I believe the commission must carefully watch developments regarding this important aspect of service. . . .

Rural customers constitute an important source of revenue to the smaller companies. It would, therefore, appear essential for them to canvass and develop their rural areas with a view to

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KEEP YOUR CUSTOMERS HAPPY

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providing telephone service to the maximum number of subscribers in their areas in view of the fact that a greater number of subscribers tends to minimize the construction costs.

The commission's telephone engineers tell us that the use of carriers, buried wire and long-span construction also tends to keep construction costs down. What I have said on this subject properly applies to the larger companies as well. The commission receives petitions and complaints from groups of applicants, such as switching subscribers or groups having no telephone service at all. Sometimes these groups are confronted with long delays, sometimes high construction charges, or a refusal on the part of the company to provide any service at all. We can be reasonably certain that this is an area of operation in which great improvements can be achieved.

I would like to say just a brief word about extended area telephone service. It should, in my opinion, be encouraged between contiguous exchanges where there is a community of interest, a high rate of calling and a need for a larger calling area. . . .

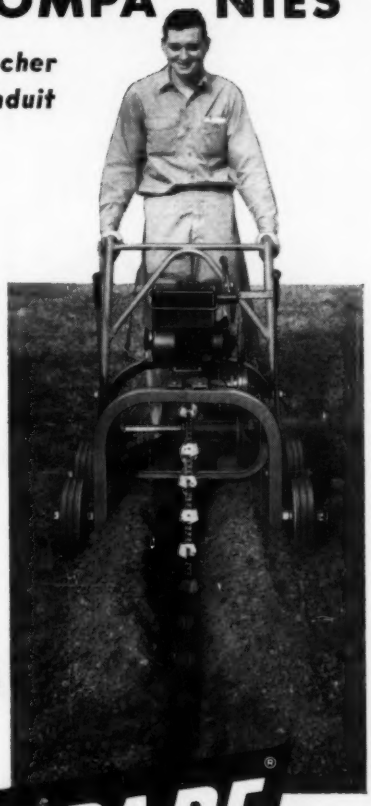
There are other aspects of the subject of company operations that I could touch on briefly, but I have talked about those that have to me seemed most timely and current at the moment. Besides, I do not want to appear to lecture you. But, in all seriousness, the matters with which you and I deal, from day to day, are not at all unimportant matters. They concern the welfare of all of the people of our great state and in these fateful days when we are in a life and death, winner-take-all, competition with another ideology across the seas, each of us has his own role to play, no matter how insignificant, in this vital effort to make our system work at its best and to keep our country prosperous, strong and free.

Sorry

TELEPHONY inadvertently switched captions for two pictures accompanying the Indiana Convention report in the June 7 issue. The switch occurred on the cuts on page 40 and the upper right of page 41. Caption under the photo on page 40 should have read: "Left to right, William Lebo, chief engineer, Indiana Public Service Commission; S. K. Trippet of Princeton, and Ira Haymaker of Franklin, member of the Indiana commission." The caption to the left of the upper right photo on page 41 should have read: "Taking time out from Indiana convention sessions are, left to right: Francis Simpson of Winchester; Chris Hansen of Elkhart, and Joe Novak of Bremen."

TELEPHONE COMPANIES

Use this fast portable trencher for cable, pipe, tubing, conduit



POW-R-SPADE narrow trenches cost 1c to 5c per foot including labor.

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Saves 80% - 90% cost and time compared to sub-contract or hand digging.

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Ready to go on the job, at once — no costly waiting around.

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Can pay for itself in one day's operation.

POW-R-SPADE digs a neat 3" wide trench. Dirt is delivered well pulverized on each side of trench — no lumps or clods. Easy to back fill.

STAMPINGS

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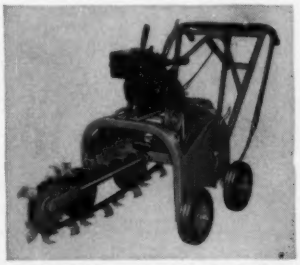
Portable from job to job. Easily handled by one man.



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WE ADMIT that these are strong statements. And yet, POW-R-SPADE users confirm them again and again. For here is a machine that is ideal for trenching 3" wide to 24" deep, where larger machines are costly and impractical; where hand labor is slow and expensive. No heavy wheel marks or unnecessarily wide trench to scar lawns. Digs right up to foundation of building. Goes 1½ to 17 feet per minute, depending upon soil conditions.

A rugged machine. Easy to set and to operate. Oil-sealed bearings. Powered by a well-known engine. Minimum maintenance. Shipped completely assembled, ready to go to work for you. Additional interesting details and information immediately yours upon return of the coupon.

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ELIMINATION OF TOLL SWITCHING TRAINS

Continued from page 30

bined into one switch train (grade of service 1 in 100). The total traffic handled is the same as before. The switch quantities in this plan were obtained as follows:

Traffic from 388 (367 Local + 21 Toll) first selector banks.

	Unit Calls	*Unit Calls Per Selector*
Level 2	1180	3.04
Level 3	1546	3.93
Level 4	1465	3.77
Level 5	1465	3.77
Level 6 & 9.....	1090	2.81

Grade of Service—1 in 100.

Level 2—At 3.04 UC per selector, 28 trunks are required per sub-group of 160 first selectors; or 56 per 320. The remaining 68 selectors carry a total of 68 × 3.04 = 207 UC, which requires 13 trunks. Thus the total number of third selectors required in this group is 56 + 13 = *69 selectors.*

Level 3—At 3.93 UC per selector, 35 trunks are required per sub-group of 160 first selectors; or 70 per 320. The remaining 68 selectors carry a total of 68 × 3.93 = 267 UC, which requires 16 trunks. Thus the total number of third selectors required in this group is 70 + 16 = *86 selectors.*

Level 4—At 3.77 UC per selector, 34 trunks are required per sub-group of 160 first selectors; or 68 per 320. The remaining 68 selectors carry a total of 68 × 3.77 = 256 UC, which requires 15 trunks. Thus the total number of third selectors required in this group is 68 + 15 = *83 selectors.*

Level 5—Same as Level 4 above.

Level 6 Plus Level 9—At 2.81 UC per selector, 26 trunks are required per sub-group of 160 first selectors; or 52 per 320. The remaining 68 selectors carry a total of 68 × 2.81 = 190 UC, which requires 13 trunks. Thus the total number of third selectors required in this group is 52 + 13 = *65 selectors.*

Fig. 6 shows a summary of the total switches, shelves and banks used in each case. It can be seen that the separate switching train arrangement requires 403 switches, 24 shelves and 44 banks compared to 386 switches, 23 shelves and 41 banks for the combined switch train job. This is assuming the same grade of service (1 in 100) for both plans. The savings in equipment costs effected by combining the traffic would, in this case, amount to approximately $3,640 at present-day prices. This is worthy of consideration.

Summary

Thus, we can say that, with the development of new circuitry to handle prepay paystation calls, it will soon be possible to entirely eliminate separate toll switching trains.

The advantages accruing from this will be many and, in conclusion, I will enumerate them as follows:

(1) Circuit design will be simpler.

(2) The equipment will cost less.

(3) In larger offices, by combining the local and toll traffic flows, we will be able to achieve more flexible and more efficient trunking.

(4) We will be able to provide in-

Recent Quotations of Telephone Stocks

	5/29/58 BID	5/29/58 ASKED	4/30/58 BID	4/30/58 ASKED
Anglo-Canadian Telephone Co.	31	31¾	31	31½
California Interstate Telephone Co.	12½	12⅞	13	13¼
California Pacific Utilities Co.	30	30½	30¼	30½
California Water & Telephone Co.	22	22¼	22½	22¾
Carolina Telephone & Telegraph Co.	151½	154	151	154
Central Telephone Co.	22½	23	21¾	22
Chenango & Unadilla Telephone Corp.	20½	24	20½	24
Cincinnati & Suburban Bell Telephone Co.	85	86	83	84
Commonwealth Telephone Co. of Ohio	17	17⅜	16⅜	16¾
Florida Telephone Corp. Class A	22	22¾	22	22⅜
General Telephone Corp. Common	48¼ (last sale)		46⅛ (last sale)	
Indiana Telephone Corp.	17 Bid		16 Bid	
Inter-County Telephone & Telegraph Co.	46¾	47⅜	46	47
Inter-Mountain Telephone Co.	15	15½	14½	15
Lincoln Telephone & Telegraph Co.	53 Bid		52	55
Middle States Telephone Co. of Illinois	18¾	19¾	20	21
North Carolina Telephone Co.	.90	1.05	.95	1.05
Northern Ohio Telephone Co.	44½	45½	40½	42
Peoples Telephone Co.	88 Bid		88 Bid	
Rochester Telephone Co.	20⅝	21	20	20⅜
Southern Nevada Telephone Co.	18⅜	18⅞	18	18½
Southern New England Telephone Co.	37⅝	38	37½	37⅞
Southwestern States Telephone Co.	22⅜	22¾	22¼	22⅝
Telephone Service Co. of Ohio Class A	121	126	120	130
Tidewater Telephone Co.	22½ Bid		22¼ Bid	
United Utilities, Inc.	24⅝	25	23	23⅜
West Coast Telephone Co.	20	20¼	20¾	21⅛
Western Light & Telephone Co., Inc.	35½	36	35¼	35¾

(Quotations supplied by Merrill Lynch, Pierce, Fenner & Smith)

*Koiled Kords RETRACTILE CORDS

Give the Best Service

KOILED KORDS have proved over the years that they give the best service to subscribers and telephone companies alike.

KOILED KORDS have reduced cord maintenance and replacement to an absolute minimum.

KOILED KORDS keep their spring-like shape and last indefinitely under the toughest conditions.

KOILED KORDS are smooth, clean and cannot be harmed by moisture, grease, acid fumes or sunlight. Be sure your subscribers have the best . . . KOILED KORDS

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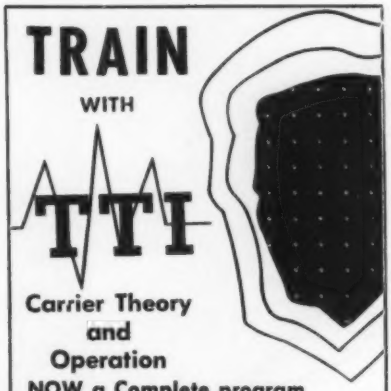

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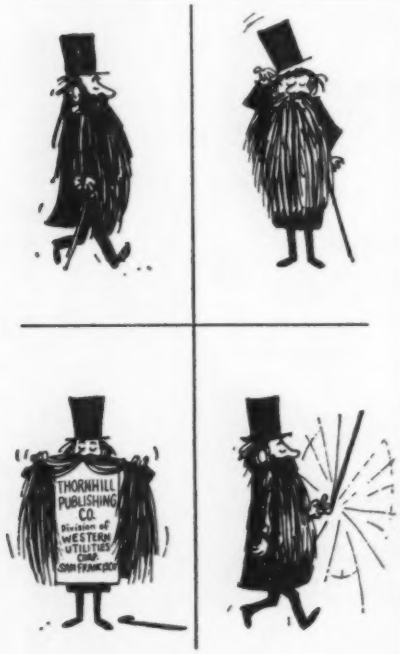

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(5) Maintenance will be simplified and maintenance costs reduced.

(6) More rapid integration of offices not provided with flashing signals into the nationwide dialing network will be possible.

(7) More personalized service on operator-dialed calls will result.

Conclusion

While I appreciate that not all of the points which I have covered in this address will have particular significance to the operations of some of the smaller Independent companies, I hope that what I have said has demonstrated that the eventual elimination of separate toll switching trains will enable us all to give better, cheaper and faster service to our subscribers.

Expansion Loan Granted By Alabama Commission

Permission for a $55,000 loan for expansion of the Bayou Telephone Co., Inc., Bayou La Batre has been granted, the Alabama Public Service Company announced on May 16.

The commission gave its approval for the company's petition to borrow the money from Stromberg-Carlson, a division of General Dynamics Corp.

The company said the funds would be spent for expansions and additions at the Bayou la Batre, Grand Bay and Dauphin Island exchanges.

Southwestern States Asks Bond Sale in Arkansas

The Southwestern States Telephone Co. applied to the Arkansas Public Service Commission on May 27 for permission to sell $2,000,000 worth of first mortgage bonds at 4½ per cent interest due in 1986.

The company, which has headquarters at Brownwood, Tex., and exchanges in Texas, Oklahoma and Arkansas, said it needed the money to pay for past improvements and for 1958 construction. It said it had 27 exchanges in Arkansas and planned to spend $900,000 in the state this year.

Rate Increase Sought By Illinois Company

The Farina Mutual Telephone Co. has requested authority for a $7,000 annual rate increase for its subscribers at Farina and Edgewood, the Illinois Commerce Commission reported on June 5.

The company asked the commission for authority to make the higher rates effective on July 2. About 800 subscribers in the two communities would be affected.

Central Telephone in N. C. Authorized to Sell Stock

The Central Telephone Co., Mount Airy, was authorized by the North Carolina Utilities Commission on June 5 to sell 25,000 shares of its $10 par value common stock to its parent company, Central Electric & Gas Company, at a price not less than $10 per share (TELEPHONY, June 7, p. 52).

Central told the commission that proceeds from the sale will be applied to its cash requirements totaling $2,250,000 for 1958.

Ohio Association Elects C. A. Beswick to Board

Clarence A. Beswick, president and general manager of the Geneva (Ohio) Telephone Co. was elected to the Board of Directors of the Ohio Independent Telephone Association on June 4.

He fills the unexpired term of Yetter Snyder, Chardon, who had resigned, it was announced by Daniel W. DeHayes, executive vice president.

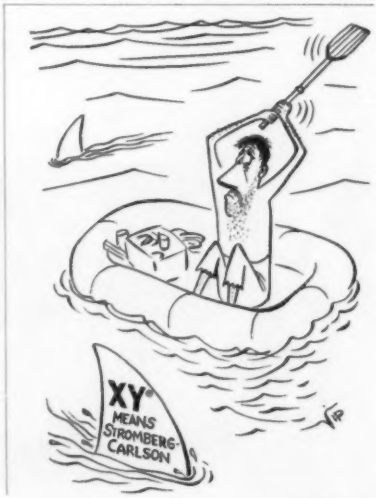
Obituary

RODNEY MYERS COGGIN, 62, founder and president of the Tidewater Telephone Co., Warsaw, Va., died on May 21.

He began his career in the telephone industry as a night operator for the Virginia Home Telephone Co. of Franklin. Mr. Coggin organized the Tidewater company in 1945. At its beginning, the company had 85 employes. Today this Virginia Independent serves more than 15,000 subscribers and employs nearly 200 persons.

A native of Branchville, Va., Mr. Coggin in 1918 took over managership of the Northern Neck Telephone & Telegraph Co.

Prominent in civic affairs, he was



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Field Adjustment Range	0 to 15 PSI
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Electric Rating	0.01 amp 110V DC
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R. M. COGGIN

instrumental in the incorporation of the town of Warsaw 12 years ago and was one of its first councilmen.

He also was a former vice president and a director of the Virginia Chamber of Commerce; past president of Virginia Independent Telephone Association and a member of the Virginia Travel Council and of the State Conservation and Development Commission. For many years, he was chairman of the Richmond County Democratic Committee.

In 1956 Mr. Coggin received the Richmond County Distinguished Citizen Award.

Survivors include his wife, Mrs. Clara Morgan Coggin; a daughter, Mrs. Robert Sanders; two sons, M. R. Marshall Coggin and Younger J. Coggin, all of Warsaw; a sister, Miss Annie Mae Coggin of Richmond, and four grandchildren.

Kellogg President Elected To Two Directorships

George T. Scharffenberger, president of Kellogg Switchboard & Supply Co., Chicago, American communications division of International Telephone & Telegraph Corp., has been elected a director of New Jersey Manufacturers Association and director of New Jersey Manufacturers Casualty Indemnity Co.

Mr. Scharffenberger, Kellogg president since September, 1955, has been with the IT&T system for the past 14 years.

OK Sale of Ill. Company

The Illinois Commerce Commission on May 28 approved the purchase of the North Harwood Telephone Co., Ludlow, by the Champaign County Telephone Co., Champaign (TELEPHONY, Feb. 16, 1957, p. 38).

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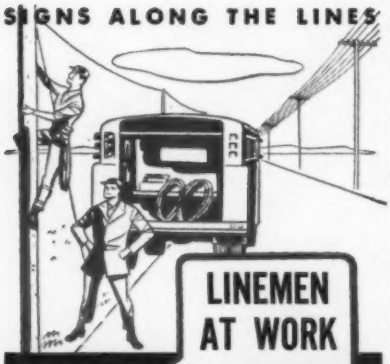

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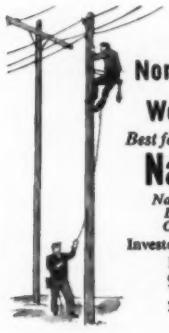

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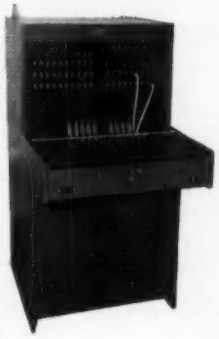

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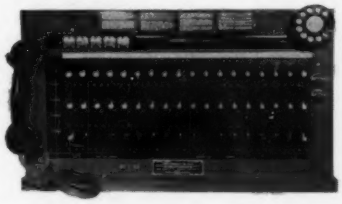

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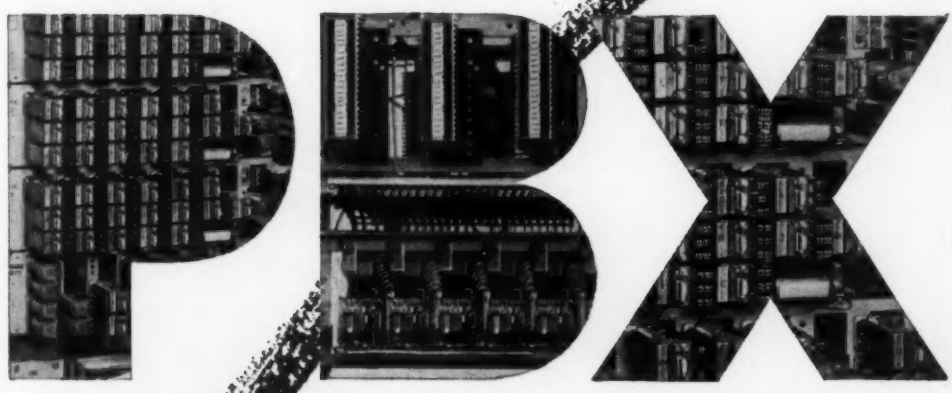

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